WEST VIRGINIA UNIVERSITY

1964-65 Catalog

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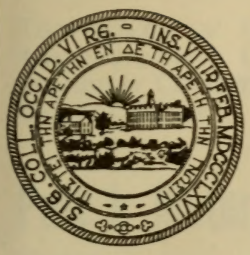

WEST VIRGINIA UNIVERSITY

The 1964-65 Catalog

WEST VIRGINIA UNIVERSITY BULLETIN

W52
1964-65

CORRESPONDENCE

Correspondence should be addressed as follows:

ADMISSIONS
Director of Admissions

ALUMNI MATTERS
Alumni Secretary

CATALOG, ANNOUNCEMENTS
Director of Admissions

EMPLOYMENT OF SENIORS AND ALUMNI
Placement Service

EXTENSION
Director of University Extension

HOUSING
Residence Halls: Director of Residence Halls
University Apartments: Housing Coordinator
Off Campus: Housing Adviser

INFORMATION
News and Information Services

MATTERS OF GENERAL UNIVERSITY INTEREST
The President

RECORDS AND REGISTRATION
Registrar

VETERANS AFFAIRS
Veterans Coordinator

WEST VIRGINIA UNIVERSITY, MORGANTOWN, W. VA.
26506

SERIES 64, NO. 12-3 — WEST VIRGINIA UNIVERSITY BULLETIN — JUNE, 1964

The *West Virginia University Bulletin* is issued monthly throughout the year. Publications included are the *Announcements* of the College of Arts and Sciences, the College of Agriculture, Forestry, and Home Economics, the College of Commerce, the College of Education, the College of Engineering, the School of Journalism, the College of Law, the Medical Center (the School of Dentistry, the School of Medicine, the School of Nursing, the School of Pharmacy, the Basic Sciences), the School of Mines, the School of Music, the School of Physical and Health Education, Recreation, and Safety, the Graduate School, and the Summer Session; the *Catalog;* bulletins of the College of Engineering and the School of Mines; the *Proceedings* of the West Virginia Academy of Science; *Victorian Poetry;* other scholarly and scientific publications.

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West Virginia University

MORGANTOWN

ESTABLISHED FEBRUARY 7, 1867

The Board of Governors

	TERM EXPIRES
WILLIAM G. THOMPSON, *President,* Montgomery	1964
OKEY B. GLENN, *Vice-President,* Williamson	1968
CHARLES C. WISE, JR., *Secretary,* Charleston	1969
RAYMOND E. SALVATI, Huntington	1965
FORREST H. KIRKPATRICK, Wheeling	1966
JAMES H. SWADLEY, JR., Keyser	1967
CYRUS S. KUMP, Elkins (Deceased February 25, 1964)	1970
K. DOUGLAS BOWERS, Beckley	1971
ALBERT B. C. BRAY, JR., Logan	1972

PAUL A. MILLER, *Chief Executive Officer,* Morgantown

The Board of Governors has charge of the educational, administrative, financial, and business affairs of the University and Potomac State College of West Virginia University.

ADMINISTRATIVE OFFICERS

General

President, PAUL AUSBORN MILLER, B.S.AGR., M.A., PH.D., LL.D., (1962), 1938.
Provost, JOHN FORD GOLAY, A.B., M.A., D.PHIL.(OXON.), (1961).
Vice President—Medical Center, KENNETH EARL PENROD, B.S., PH.D., (1959).
Vice President—West Virginia Center for Appalachian Studies and Development, ERNEST JOSEPH NESIUS, B.S.A., M.S.A., PH.D., (1963), 1960.
Comptroller and Director of Business Affairs, LOUISE KEENER, B.A., (1954), 1929.
Registrar, STANLEY ROBERT HARRIS, A.B., M.S., (1963), 1953.
Director of Admissions and Assistant Provost, DAVID NORMAN HESS, A.B., B.D., M.A., PH.D., (1963).
Director of Libraries, ROBERT FERGUSON MUNN, A.B., M.A., PH.D., (1957), 1952.
Director of Student Affairs, JOSEPH CLAY GLUCK, B.A., B.D., (1948), 1943.
Dean of Women, BETTY BOYD, A.B., (1955), 1948.
Director of Development, DONOVAN HINER BOND, B.S.J., M.A., (1959), 1946.
University Marshal, SAM BOYD, JR., B.F.A., M.F.A., (1959), 1943.

Colleges, Schools, and Divisions

Agriculture, Forestry, and Home Economics, ROBERT STANDISH DUNBAR, JR., PH.D., *Dean,* (1964), 1952.
Arts and Sciences, CARL MAYNARD FRASURE, PH.D., *Dean,* (1961), 1927.
Commerce, THOMAS CORWITH CAMPBELL, JR., PH.D., *Dean,* (1964), 1948.
Creative Arts Center, RICHARD EDWARD DUNCAN, PH.D., *Dean and Director,* (1964), 1958.
Dentistry, KENNETH VINCENT RANDOLPH, D.D.S., *Dean,* (1958), 1957.
Education, EARL RUFFNER BOGGS, PH.D., *Dean,* (1960).
Engineering, CHESTER ABBO ARENTS, M.E., *Dean,* (1955).
Engineering Experiment Station, CHESTER ABBO ARENTS, M.E., *Director,* (1963), 1955.
Graduate, JOHN FORD GOLAY, D.PHIL.(OXON.), *Dean,* (1961).
Journalism, QUINTUS CHARLES WILSON, PH.D., *Dean,* (1961).
Law, CLYDE LEMUEL COLSON, S.J.D., *Dean,* (1956), 1935.
Medicine, CLARK KENDALL SLEETH, M.D., *Dean,* (1961), 1935.
Mines, CHARLES THOMAS HOLLAND, M.S.E.M., *Dean,* (1961), 1930.
Nursing, DOROTHY MAE MAJOR, ED.D., *Dean,* (1960).
Pharmacy, RAPHAEL OTTO BACHMANN, PH.D., *Dean,* (1961).
Physical and Health Education, Recreation, and Safety, RAY OSCAR DUNCAN, ED.D., *Dean,* (1952).
Air Force R.O.T.C., COL. LOUIS A. GARVIN, B.S., *Head,* (1960).
Army R.O.T.C., COL. EDWIN W. REYNOLDS, B.S., *Head,* (1962).

Heads of Other Administrative Offices

Alumni Association, DAVID WOOD JACOBS, A.B., *Executive Secretary,* (1938).
Book Store, RUTH ELEANOR ROBINSON, A.M., *Manager,* (1944), 1939.
Computer Center, ALBERT E. DRAKE, PH.D., *Director,* (1963).
Educational Broadcasting, C. GREGORY VAN CAMP, A.B., *Director,* (1960).
Health Service, JOHN JOSEPH LAWLESS, PH.D., M.D., *Director,* (1944), 1935.
High School, University, DELMAS FERGUSON MILLER, PH.D., *Director,* (1960), 1949.
E. GRANT NINE, M.S., *Principal,* (1960), 1956.
Housing, ROBERT A. ROBARDS, B.S.B.A., *Coordinator,* (1964), 1960.
Intercollegiate Athletics, ROBERT NATHAN BROWN, A.B., *Director,* (1954), 1950.
Kanawha Valley Graduate Center, WALTER HAMILTON WALKER, PH.D., *Director,* (1960).

NOTE: The first date following titles indicates latest appointment. The second date indicates year of first appointment to a University position.

Labor Education Service, Stanley M. Hostler, M.A., *Director,* (1962), 1959.
Mountainlair, Robert F. McWhorter, M.S., *Director,* (1959).
Nursing Service, Audrey Edith Windemuth, M.S., *Director,* (1960).
Parkersburg Branch, Billy Lee Coffindaffer, Ph.D., *Acting Director* (1964), 1950.
Personnel, S. Thomas Serpento, M.A., *Director,* (1964), 1960.
Physical Plant, Clifton Wharton Flenniken, Jr., B.S., *Director,* (1961).
Placement, Margaret Cornelia Ladwig, Ph.D., *Adviser,* (1949).
Residence Halls, Agnes B. Hovee, M.A., *Director,* (1956), 1950.
University Hospital, Eugene Leo Staples, M.S., *Director,* (1960).
University Publications, John Luchok, B.S.J., *Editor,* (1953), 1950.
Veterans Affairs and University Scholarships, Neil E. Bolyard, M.A., *Coordinator,* (1963).
West Virginia Center for Appalachian Studies and Development
Cooperative Extension Service, Ernest Joseph Nesius, Ph.D., *Director,* (1961).
Extension, University, Ernie Bevan McCue, M.A., *Director,* (1952), 1947.
Research and Development, Office of, John C. Ludlum, Ph.D., *Director,* (1963), 1946.

Standing Committees

THE UNIVERSITY

ADMISSIONS: The Director of Admissions, the Registrar, and the Deans of all colleges and schools admitting freshmen.
BOARD OF GOVERNORS SCHOLARSHIPS:
Undergraduate: F. J. Holter, E. R. Boggs, R. E. Duncan, J. C. Gluck, S. R. Harris, and Q. C. Wilson.
Graduate: F. J. Holter, W. O. Morris, K. V. Randolph, Bernard Scher, and J. C. Stickney.
PHYSICAL FACILITIES: C. L. Lazzell, C. A. Arents, T. C. Campbell, Jr., A. R. Collett, C. L. Colson, R. E. Duncan, R. O. Duncan, J. C. Gluck, S. R. Harris, C. T. Holland, Louise Keener, J. O. Knapp, and R. F. Munn.
SPACE ALLOCATION: A. R. Collett, C. A. Arents, R. O. Duncan, C. W. Flenniken, Jr., S. R. Harris, Louise Keener, J. O. Knapp, and C. R. Wagner.

THE SENATE

EXECUTIVE COMMITTEE: President Miller, R. S. Dunbar, Jr., H. C. Evans, R. E. Foster, S. R. Harris, D. F. Miller, D. T. Watts, and J. R. Williams.
COMMITTEES: Dana Wells, W. W. Fleming, J. E. Ford, W. O. Morris, and C. P. Yost.
ENGLISH PROFICIENCY: V. Q. Alvis, H. E. Kidder, Cornelia Ladwig, G. M. Pitts, W. E. Vehse, Elisabeth Yearick, and Bernard Zimmermann.
EXTENSION: M. G. Brooks, J. A. Caruso, A. F. Galli, C. T. Holland, ex officio; E. B. McCue, ex officio; C. M. Morris, and E. J. Nesius, ex officio.
FACULTY HOUSING: J. H. Schaub, Wincie Ann Carruth, Carl Dennler, Jr., J. N. Shafer, and D. T. Watts.
FACULTY WELFARE: W. W. Armentrout, A. J. Braff, L. H. Brown, W. G. Klingberg, and W. D. Lorensen.
INSTRUCTIONAL POLICIES AND PRACTICES: Peter Popovich, K. A. Cook, A. C. Core, Q. F. Curtis, E. C. Jones, H. N. Kerr, and H. A. Lindsay.
LIBRARY: M. T. Heald, J. A. Caruso, G. L. Humphrey, Leo Horacek, R. F. Munn, ex officio; W. D. Northup, A. E. Singer, and R. H. Theophilus.
MEMBERSHIP: H. N. Rexroad, J. D. McClung, and S. J. Weese.
PUBLICATIONS: E. L. Core, J. A. Caruso, R. E. Foster, John Luchok, ex officio; R. J. Marshall, and G. H. Stewart.
RESEARCH: R. F. Krause, J. F. Golay, ex officio; H. W. Gould, J. E. Hall, J. B. Hickman, W. H. Jarecke, J. A. Kent, W. F. Manning, E. J. Nesius, ex officio; J. H. Thompson, and E. H. Tryon.

STUDENT AFFAIRS: J. C. Gluck. Members to consist of the various chairmen of sub-committees on student affairs as appointed by the President.

Convocations: J. C. Gluck, R. B. McGregor, R. F. McWhorter, D. T. Watts; student members: John W. Botts, Loleta M. Melton, Sue Ann Miller, and Michael L. Yurko.

Cultural: J. C. Gluck, Sam Boyd, Jr., R. E. Duncan, and R. F. McWhorter; student members: Jay M. Bucklew, Gary McClellan, Raymond E. Pierce, Jr., and Elizabeth Pokrywka.

Discipline: M. L. Vest, Mary C. Buswell, and R. F. Krause.

Mountainlair Governing Board: J. C. Gluck, Betty Boyd, O. J. Burger, R. F. McWhorter, J. S. Scherlacher, and Dana Wells; student members: Patrick H. Brown, Dee Ann Cabo, James W. Kershner, James D. Patton, and Rodetta Taylor.

New Residences: J. C. Gluck, L. R. Gribble, Stephen Harrick, and Cornelia Ladwig.

Off-Campus Schedules: J. C. Gluck, L. R. Gribble, and C. A. Arents.

Scholarships, Awards, and Student Financial Aids: J. C. Gluck, N. E. Bolyard, Betty Boyd, A. W. Goodspeed, D. N. Hess, and R. M. White.

Social Affairs: J. C. Gluck, Betty Boyd, Beatrice Hurst, R. F. McWhorter, Olive D. Lewis, C. W. Shetler, and H. E. Kidder; student members: Jeffrey S. Furst, Ellen D. Major, Paula Ross, David Treharne, and Ellen Warder.

Student Fee Funds: J. C. Gluck, Betty Boyd; student members: Harold D. Casali, Byron Kallam, and Joanna Pitser.

Student Organizations: R. E. Foster, Wincie A. Carruth, G. R. Thorn; student members: Ronald L. Wilkinson and Dorothy A. Willard.

Student Publications: Q. C. Wilson, H. D. Collins, P. W. Gainer, F. E. Wright, and John Luchok; student members: Barbara L. Downey, Robert J. Fagiolette, and Ellen D. Pryor.

STUDENT ETHICS IN ACADEMIC WORK: J. F. Carruth, F. E. Boyers, S. E. Dadisman, Stanley Farr, J. B. Harley, and L. M. Sizer.

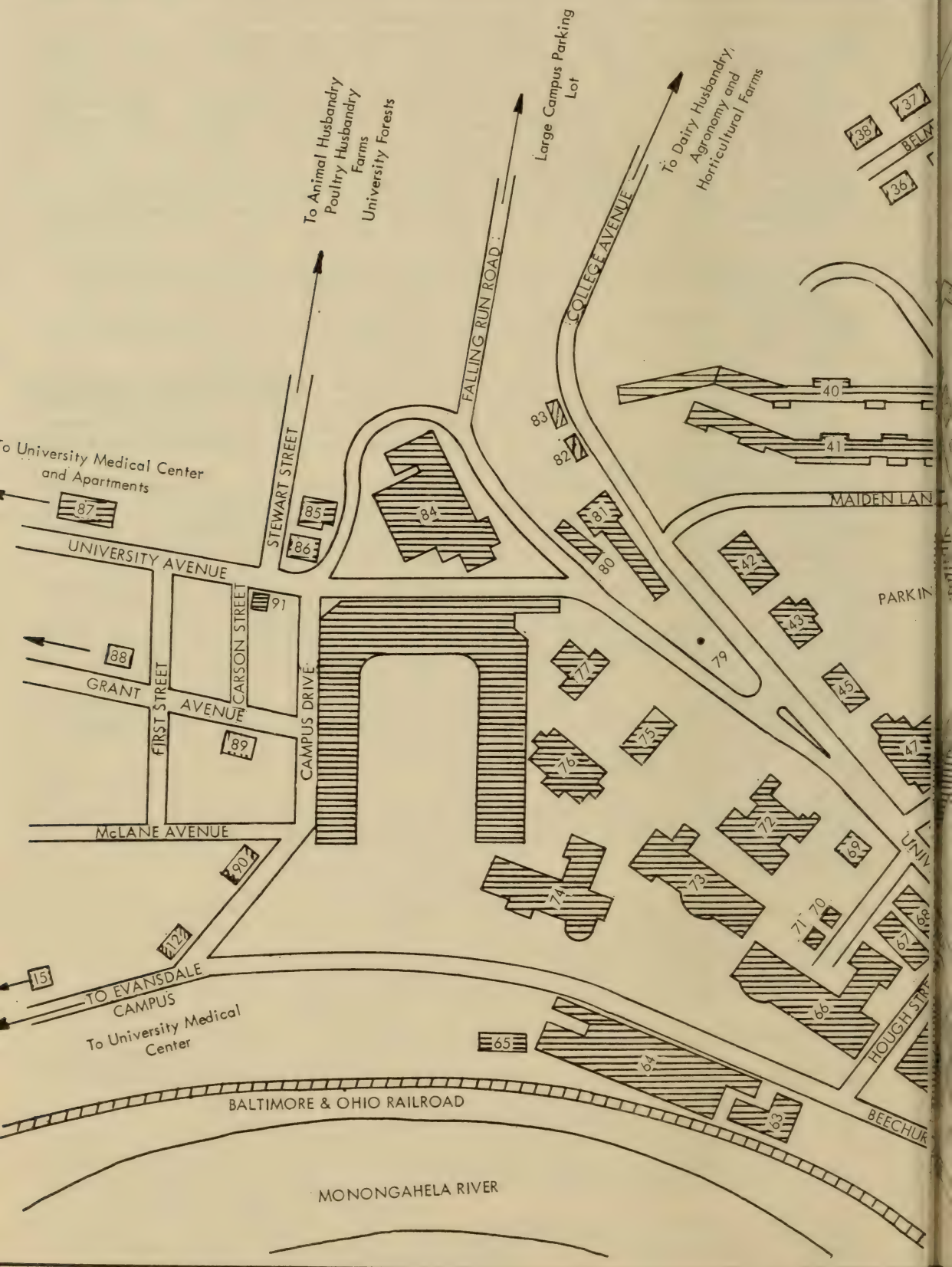
TEACHER EVALUATION: R. E. Sausen, C. W. Brown, E. G. Frere, H. R. Hartzler, D. W. H. MacDowell, Gaynelle McKinney, D. F. Miller, and John Semon.

TEACHER TRAINING: J. P. Brawner, N. M. Baughman, E. R. Boggs, ex officio; J. F. Clovis, C. N. Cochran, D. E. Hayhurst, J. H. Henning, Frank Herrera, H. N. Kerr, I. D. Peters, and John Semon.

TENURE AND RETIREMENT: J. D. Graybeal, C. R. Bishop, L. H. Brown, T. C. Campbell, Jr., and H. A. Gibbard.

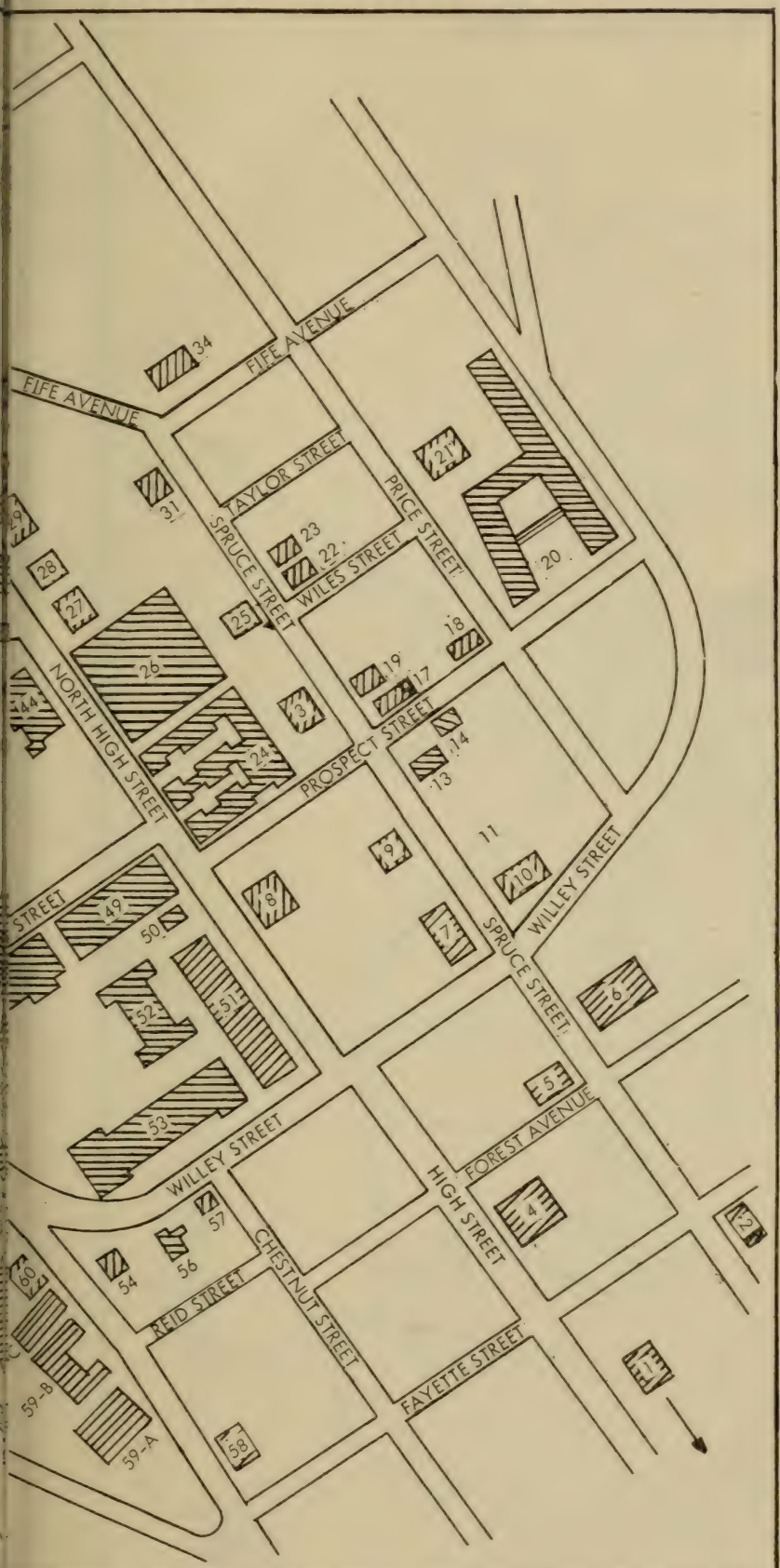
UNIVERSITY RESEARCH GRANTS: J. F. Golay, E. B. Flink, R. E. Foster, A. D. Longhouse, A. S. Pavlovic, J. N. Shafer, H. P. Simons, and J. R. Williams.

THE WEST VIRGINIA UNIVER

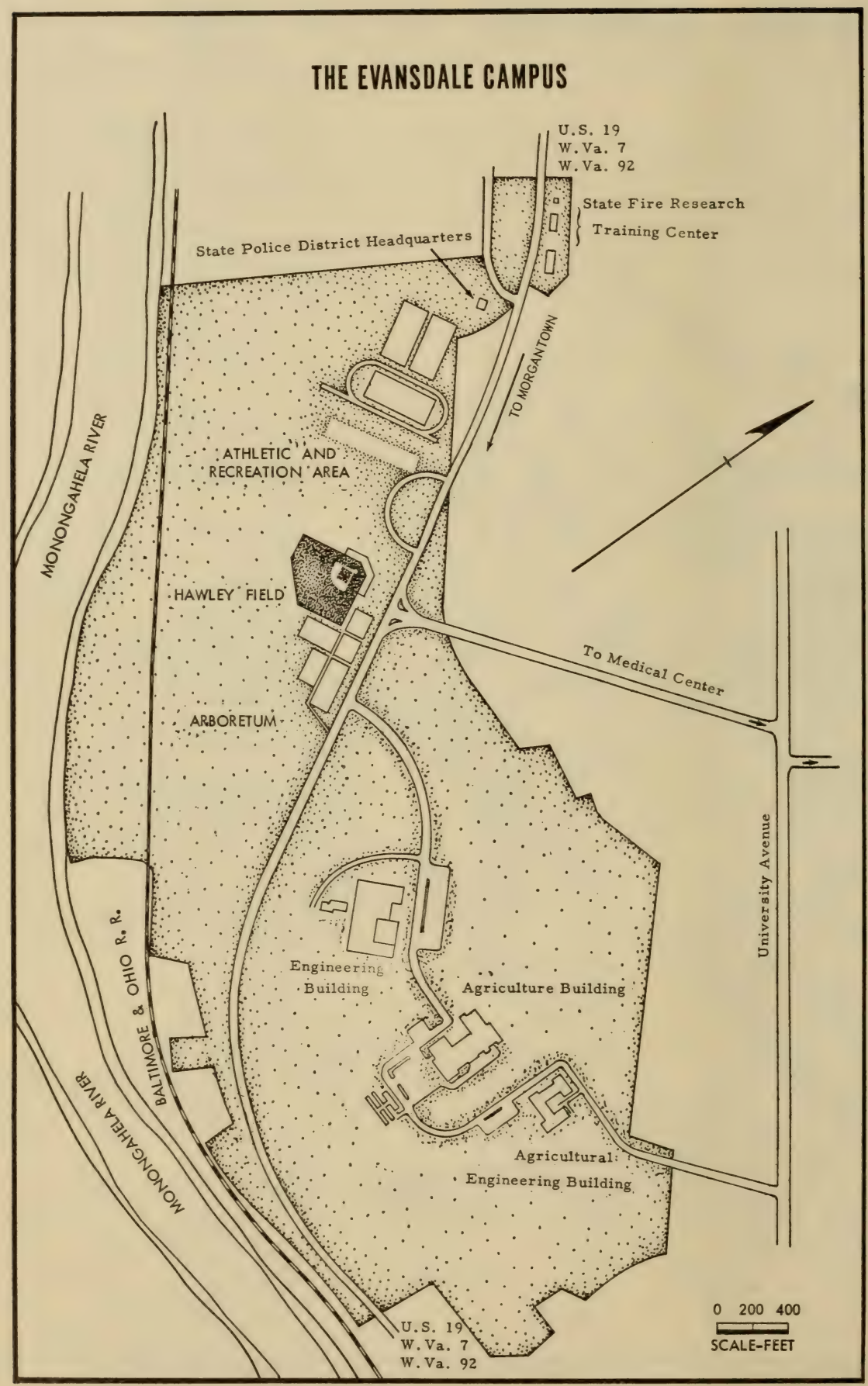


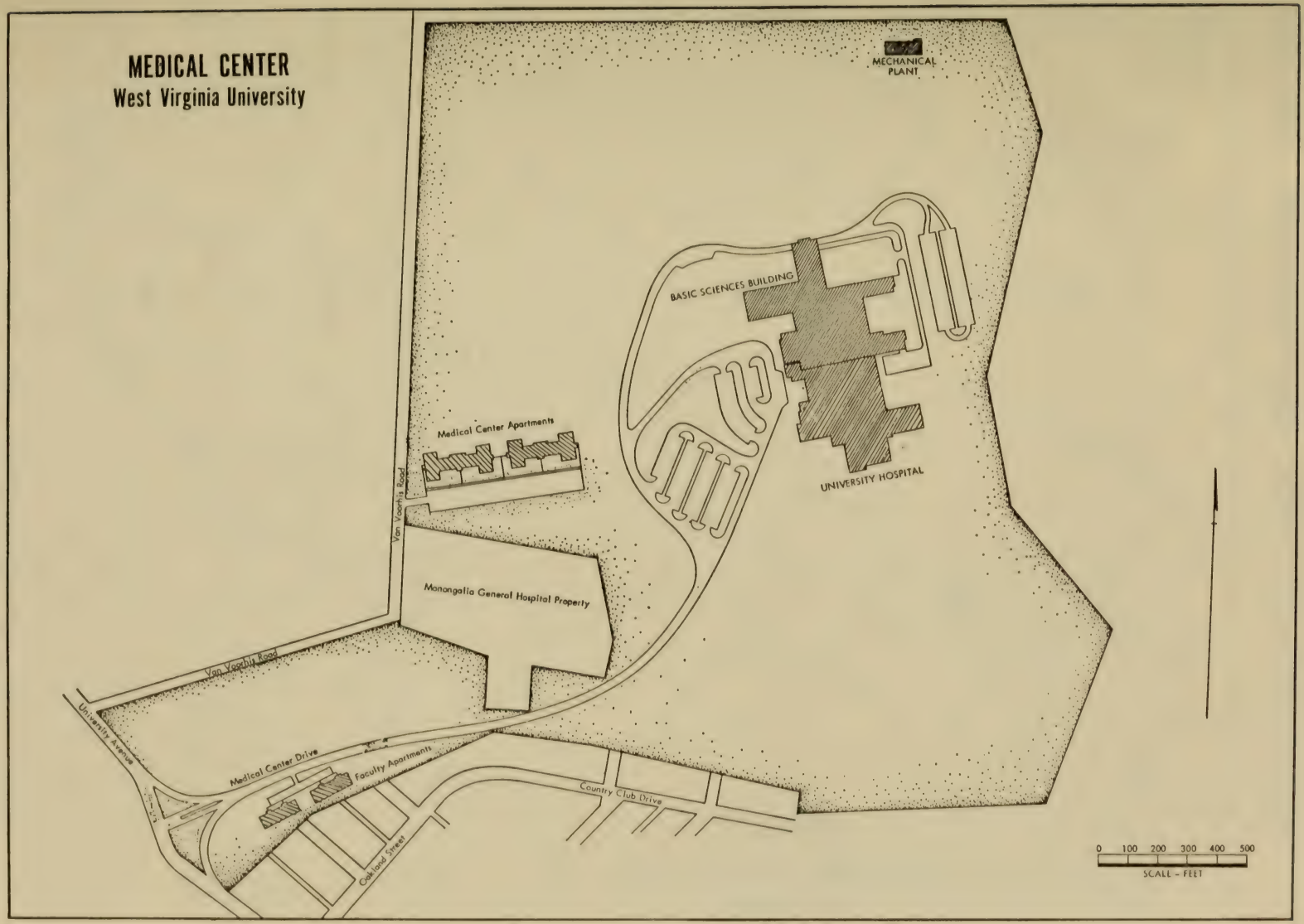
1. Christian Church – Disciples Fellowship
2. Spruce Street Methodist Church
3. Gamma Phi Beta Sorority
4. Baptist Church Student Fellows
5. Greek Orthodox Church – Greek
6. Presbyterian Church – Westmini

Y MAIN CAMPUS

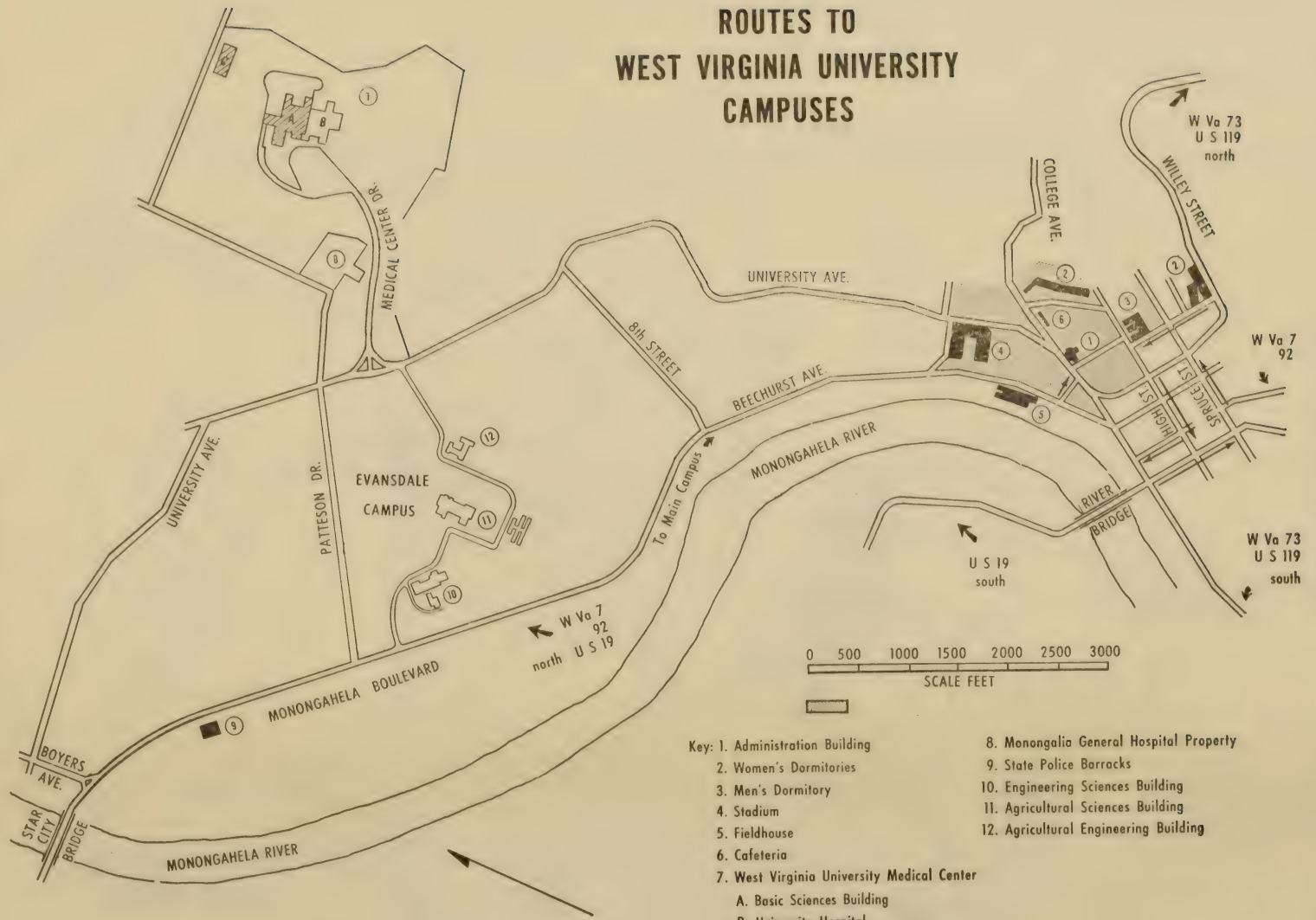


7. Episcopal Church – Canterbury Association
8. Chi Omega Sorority
9. Phi Kappa Sigma Fraternity
10. Alpha Phi Sorority
11. Spruce Street Parking Lot
12. Nursery School
13. Laurel Cottage
14. 284 Prospect
15. Lutheran Church
16.
17. Kappa Kappa Gamma Sorority
18. Alpha Delta Pi Sorority
19. Alpha Xi Delta Sorority
20. Arnold Hall Residence and Apartments
21. Delta Gamma Sorority
22. Delta Delta Delta Sorority
23. Alpha Phi Delta Fraternity
24. Gov. Arthur I. Boreman Hall, South
25. Theta Chi Fraternity
26. Gov. Arthur I. Boreman Hall, North
27. Delta Tau Delta Fraternity
28. Kappa Alpha Fraternity
29. Phi Sigma Kappa Fraternity
30. Sigma Chi Fraternity
31. Phi Sigma Delta Fraternity
32. Tau Kappa Epsilon Fraternity
33.
34. Phi Kappa Psi Fraternity
35. Sigma Nu Fraternity
36. Kappa Sigma Fraternity
37. Beta Theta Pi Fraternity
38. Phi Delta Theta Fraternity
39.
40. Terrace Hall
41. Woman's Hall
42. Cafeteria
43. Health Center
44. Armory
45. Reynolds Hall
46. Speech Annex
47. Administration Building
48. Chemistry Building
49. Engineering Building No. 1
50. Faculty Club House and University Extension Office
51. Methodist Church – Wesley Foundation
52. Library
53. Mineral Industries Building
54. Kappa Delta Sorority
55.
56. Home Management House
57. Alpha Sigma Phi Fraternity
58. Jewish Youth Center – Hillel Foundation
59-A St. Theresa Catholic Church
59-B Newman Hall (Catholic youth group)
59. C St. John's Chapel
60. Pi Beta Phi Sorority
61. Music Building
62. Lutheran Student Association
63. Industrial Arts
64. Field House
65. Heating Plant
66. Physics Building
67. Bookstore
68. Law Building
69. President's Home
70. Counseling Center
71. Placement Office
72. Elizabeth Moore Hall
73. Armstrong Hall
74. Brooks Hall
75. Martin Hall
76. Woodburn Hall
77. Science Hall
78. Mountaineer Field
79. U.S.S. W.Va. Mast
80. Oglebay Hall Annex
81. Oglebay Hall
82. Residence Housing Office
83. 721 College Avenue
84. Mountainlair
85. Plant Pathology Greenhouse
86. Forestry Building
87. Evangelical United Brethren Church – Student Youth Fellowship
88. Alpha Gamma Rho Fraternity
89. Lambda Chi Alpha Fraternity
90. Pi Kappa Alpha Fraternity
91. Industrial Arts Annex


THE EVANSDALE CAMPUS
U.S. 19
W.Va. 7
W.Va. 92
State Fire Research
Training Center
State Police District Headquarters
TO MORGANTOWN
MONONGAHELA RIVER
ATHLETIC AND
RECREATION AREA
HAWLEY FIELD
To Medical Center
ARBORETUM
University Avenue
Engineering
Building
Agriculture Building
BALTIMORE & OHIO R. R.
MONONGAHELA RIVER
Agricultural
Engineering Building
U.S. 19
W.Va. 7
W.Va. 92
0 200 400
SCALE-FEET


MEDICAL CENTER
West Virginia University
MECHANICAL PLANT
BASIC SCIENCES BUILDING
UNIVERSITY HOSPITAL
Medical Center Apartments
Van Voorhis Road
Monongalia General Hospital Property
Van Voorhis Road
University Avenue
Medical Center Drive
Faculty Apartments
Country Club Drive
Oakland Street
0 100 200 300 400 500
SCALE - FEET

ROUTES TO WEST VIRGINIA UNIVERSITY CAMPUSES



Key:
1. Administration Building
2. Women's Dormitories
3. Men's Dormitory
4. Stadium
5. Fieldhouse
6. Cafeteria
7. West Virginia University Medical Center
   - A. Basic Sciences Building
   - B. University Hospital
   - C. Mechanical Plant
8. Monongalia General Hospital Property
9. State Police Barracks
10. Engineering Sciences Building
11. Agricultural Sciences Building
12. Agricultural Engineering Building

Part I

HISTORY, DESCRIPTION, AND ORGANIZATION

History

West Virginia University was founded as a result of the Congressional Land-Grant (Morrill) Act of July 2, 1862, originally proposed in Congress for the benefit of agriculture and the mechanic arts. The State Legislature accepted conditions of the Act on October 3, 1862. Because of the State's questionable wartime status, the Legislature later specifically requested that the Act's benefits be extended to West Virginia. This was done by Congress on April 19, 1864, with the issuance of 150,000 acres in land scrip for public tracts, principally in Iowa and Minnesota.

The trustees of Monongalia Academy, on January 9, 1866, offered its property to the State, including the site and other property of nearby Woodburn Female Seminary, appraised at $51,000, on condition that the proposed college "be located permanently at or near Morgantown." The Legislature accepted the offer February 7, 1867, and established the "Agricultural College of West Virginia."

Government and control of the "Agricultural College" were vested in a Board of Visitors composed of one member from each of the State's eleven senatorial districts. In response to requests from President Alexander Martin, the Legislature, by an act of December 4, 1868, changed the name of the "Agricultural College" to "West Virginia University." At the same time the name of the controlling body was changed from "Board of Visitors" to "Board of Regents." Primarily to serve political purposes, the number of regents was changed from time to time until 1919, when government and control were vested in a State Board of Education of five members, including the State superintendent of free schools as the ex officio chairman. This plan was unsatisfactory, and an act of April 14, 1927, vested control of the University's academic matters in a Board of Governors of seven members. In 1947, the Board was increased to nine members, and made responsible for both academic and financial affairs of the University.

Right up to the end of the century, supporters of the institution were divided on whether to work for a "State-supported University," or a "first-class State-supported college." Until the early 1890's, the "College Plan" dominated, with "departments" and "schools" functioning autonomously, and with professors generally occupying "chairs" and operating provincially.

But the Hatch Act (1887) and the Second Morrill Act (1890) stimulated more progressive thinking among leaders in higher education. Many of them who were familiar with European systems (including the University's President, James L. Goodknight) helped bring the "University Plan" into the ascendancy. In 1895 President Goodknight set out to convert the "University" into just that.

ORIGIN OF THE SCHOOLS AND COLLEGES

The eight Academy Schools, five Technical and Professional Schools, and four Special Courses were organized into four colleges, each with a dean: Arts and Sciences, Powell B. Reynolds; Engineering and Mechanic Arts, William S. Aldrich; Agriculture, John A. Meyers; and Law, Judge Okey Johnson. The School of Music was established in 1897, a "Summer Quarter" or "Continuous Session" in 1898, and a College of Medicine in 1900.

Both the College of Medicine and the Summer Quarter were discontinued in 1901. Beginning in 1897 the College of Arts and Sciences and the College of Engineering and Mechanic Arts functioned without deans and through more or less autonomous departments and schools to 1911 when the deanships were revived. In 1902 a semblance of the "Summer Quarter" was revived in the "Summer School," which in 1932 became the "Summer Session." Alternating between a department and a school organization since 1867, Military Science and Tactics became a division in 1911. The arrangement made in 1903 with the College of Physicians and surgeons, Baltimore, for maintaining a University College of Medicine proved unsatisfactory. It was discontinued in 1910, and the "Medical Sciences" were offered

in a department of the College of Arts and Sciences to 1912 when the School of Medicine was established. In 1914 a Department of Pharmacy was established in the School of Medicine. In the same year the the Department of Home Economics, previously a unit in the College of Arts and Sciences, was transferred to the College of Agriculture. The Division of Agricultural Extension was organized in 1912 and the Division of Mining and Industrial Extension in 1914.

The building program inaugurated in 1917 brought additional expansions and curricular offerings. Among the former were the Engineering Experiment Station, 1921, and the School of Mines, 1926, which in 1930 became an independent unit. In 1927 the courses in education were transferred from the College of Arts and Sciences to the newly created College of Education, and in 1928 the Division of Physical Education was established. Offerings were being improved meanwhile through additional and better-qualified personnel. In January, 1930, the Board of Governors established a Graduate School authorized to offer graduate degrees in certain indicated fields.

The Depression (1929-35) slowed expansion somewhat, but progress was resumed in 1936 when the Department of Pharmacy was discontinued as a unit of the School of Medicine and converted to the College of Pharmacy. The next year the Division of Physical Education and the Department of Athletics were combined into the School of Physical Education and Athletics. At the same time (1937), the course in Forestry, begun in 1935 as a two-year curriculum in the College of Agriculture, was expanded to a four-year course, and the name of the sponsoring unit was changed to the College of Agriculture, Forestry, and Home Economics. In 1939 the Department of Journalism was discontinued as a unit in the College of Arts and Sciences and became the School of Journalism. The same year a Department of Art was established in the College of Arts and Sciences. In 1940 the College was further enlarged by the inclusion of a Department of Social Administration, authorized to offer a graduate curriculum leading to the professional Certificate of Social Work. In 1941 the name was changed to the Department of Social Work, and in 1944 the Department was authorized to establish an undergraduate curriculum in social work leading to the Bachelor of Science Degree.

In 1950 the Board of Governors authorized the degree of Master of Social Work and approved the establishment of a two-year curriculum leading to that degree. In 1944 a four-year course leading to the B.S. (Medical Technology) Degree was approved to be given jointly by the College of Arts and Sciences and the School of Medicine. In 1948 the Board of Governors approved an order authorizing the College of Arts and Sciences to offer a general course as an integral part of its curriculum and an optional lower-division program of general studies. In 1951, the Department of Economics and Business Administration was discontinued as a unit in the College of Arts and Sciences and converted into the College of Commerce. In 1953 the School of Dentistry was established. In 1958, the College of Pharmacy was reconverted into the School of Pharmacy, marking the integration of the School into the University's expanding medical sciences program. The University's Kanawha Valley Graduate Center of Science and Engineering was established at Institute, with the first classes beginning in September of 1958. In 1961 it was changed to Kanawha Valley Graduate Center of West Virginia University. In 1960 the School of Physical Education and Athletics was changed to the School of Physical and Health Education, Recreation, and Safety. In 1960 the School of Nursing was established.

On February 5, 1963, the Board of Governors of West Virginia University approved the establishment of the West Virginia Center for Appalachian Studies and Development. Prior to this date, the West Virginia State Legislature and the Governor passed and approved legislation (House Bill No. 231) which changed the name of the Agricultural Extension Service to the Cooperative Extension Service and realigned it administratively from the College of Agriculture, Forestry, and Home Economics to the West Virginia Center for Appalachian Studies and Development.

PRESIDENTS OF THE UNIVERSITY

The University has had fifteen regular presidents, eleven acting presidents, and one chairman of the faculty. Together with their periods of service, they were Alexander Martin, April 3, 1867-August 12, 1875; Vice-president John Work Scott

(acting), September 6, 1875-March 27, 1877; John Rhey Thompson, March 28, 1877-March 12, 1881; Vice-president Daniel Boardman Purinton (acting) March 13, 1881-1882; William Lyne Wilson, 1882-1883; Robert Carter Berkeley (Chairman of the faculty), 1883-1885; Eli Marsh Turner, 1885-July 21, 1893; Vice-President Powell Benton Reynolds (acting), July 24, 1893-1895; James L. Goodknight, 1895-August 6, 1897; (from August 6 to August 19, 1897, Vice-president Robert Allen Armstrong was nominally acting president); Jerome Hall Raymond, August 10, 1897-1901; Powell Benton Reynolds (acting), March 21, 1901-July 31, 1901; Daniel Boardman Purinton, August 1, 1901-July 31, 1911; Alexander R. Whitehill (acting), August 1, 1911-September 30, 1911; Thomas Edward Hodges, October, 1911-August 31, 1914; Frank Butler Trotter (acting), July 9, 1914-1916; 1916-1928; John Roscoe Turner, 1928-December 31, 1934; Robert Allen Armstrong (acting), January 1, 1935-September 30, 1935; Chauncey Samuel Boucher, October 1, 1935-August 31, 1938; Charles Elmer Lawall (acting), September 1, 1938-1939; 1939-August 31, 1945; Charles Thompson Neff, Jr., (acting), September 1, 1945-1946; Irvin Stewart 1946-August 25, 1958; Clyde Lemuel Colson (acting), August 26, 1958-January 31, 1959; Elvis Jacob Stahr, Jr., February 1, 1959-January 25, 1961; Clyde Lemuel Colson (acting), January 26, 1961-December 31, 1961; Paul Ausborn Miller, January 1, 1962.

Description

THE PHYSICAL PLANT

West Virginia University's Main Campus comprises 74.35 acres near the center of Morgantown. Its Evansdale Campus, about one and one-half miles northwest of the Main Campus, consists of approximately 260 acres and was acquired in 1948. This campus is the site of the new buildings of the Colleges of Agriculture and Engineering, occupied in the Spring of 1961. In 1951, the Monongalia County Court deeded to the University approximately 85 acres of land adjoining 55 acres already owned by the University. This 140-acre tract, about one and one-half miles north of the Main Campus, is the site of the new University Medical Center. In 1960 the University acquired 58.05 additional acres in the area across a road from the Medical Center Mechanical Plant. This acreage is adjacent to 3 acres bequeathed to the University. Since 1960 property of 18.78 acres has been acquired. The first building of the Center, the Mechanical Plant, was completed in 1954. The Basic Sciences Building was opened for classes in September, 1957. Construction was completed on the University Hospital in December, 1959.

Much of the Main Campus is on high ground overlooking the Monongahela River and the surrounding countryside. The physical plant includes 54 state-owned buildings or structures on campus, five demonstration and experimental farms near Morgantown, four additional experimental farms and two Cooperative Extension centers located at suitable points throughout the State, a summer surveying camp for civil and mining engineering students, and a summer camp for forestry and biological science students. A new women's dormitory, Arnold Hall, was put into use in September, 1957, and an addition to Men's Hall, accommodating 250 students, in September, 1959.

In the summer of 1961 completion of a large housing project provided 188 apartments for faculty, staff, and students at the Medical Center, as well as 276 dormitory spaces for women students and 86 apartments for faculty, staff, and students on the Main Campus.

In the fall of 1962 three apartment buildings which house 24 families were completed on the College Park property of the University. In the fall of 1963 four similar apartment buildings were opened.

CAMPUS STRUCTURES

Structures on the three campuses, with the dates of their completion or acquisition, are: Martin Hall, 1870; Woodburn Hall, 1876; Science Hall, 1893; Armory, 1902; Administration Building (which was the old Library), 1902; President's Home, 1905; Heating Plant, 1906; Placement Office, 1914; Horticultural Greenhouse, 1915; Oglebay Hall, 1918; Women's Hall (the wings were added in 1935),

1919; Plant Pathology Greenhouse, 1920; Law Building, 1923; Speech Annex (was the University cafeteria until 1947, now houses scene shops of the Department of Speech and shops of the Department of Buildings and Grounds), 1924; Mountaineer Field, 1925; Hall of Chemistry, 1925; Elizabeth Moore Hall, 1928; Field House, 1929; University Library, 1931; Deahl Hall, to 1948 the "University Rural High School," 1933; Men's Hall, 1935; Oglebay Hall Annexes, 1933 and 1937; Reynolds Hall (formerly "Commencement Hall," completed in 1893), 1940; Mineral Industries Building, 1942; University Health Center, 1942; Terrace Hall, 1942; Home Management House, 1942; Forestry Building, 1946; Cafeteria, 1947; Mountainlair, 1948; Armstrong Hall, 1950; Brooks Hall, 1951; Physics Building, 1952; Music Building, 1954; Arnold Hall, 1957; Medical Center Basic Sciences Building, 1957; Engineering Buildings Nos. 1 and 2, 1957; Book Store Building, 1958; Men's Hall Addition, 1959; University Hospital, 1959; 284 Prospect Street, 1960; Laurel Cottage, 1960; 719 College Avenue, 1960; Faculty Apartments A and B, Medical Center, 1961; Medical Center Apartments J and K, 1961; Arnold Hall Addition and Arnold Hall Apartments, 1961; Terrace Hall Addition, 1961; Engineering Sciences and Aerospace, 1961; Agricultural Sciences, 1961; Agricultural Engineering, 1961; Greenhouses on Evansdale Campus, 1961.

LOCATION

The main campuses of the University are in Morgantown, Monongalia County, 80 miles southeast of Wheeling and 200 miles north of Charleston. The community is served by the Baltimore and Ohio Railroad (limousine service between Morgantown and Grafton), Lake Central Airlines, thirty truck systems and five bus lines, and W. Va. Routes 7, 73 and 92, and U. S. Routes 19 and 119. Morgantown is located on the Monongahela River, 72 miles south of Pittsburgh, Pa. Half of the population of the United States is within 500 miles of Morgantown.

ACCREDITATION

West Virginia University is a member of the North Central Association of Colleges and Secondary Schools. It is accredited by the North Central Association and various accrediting agencies.

FARMS

The farms, with dates of acquisition, are: Dairy Husbandry Farm, 175 acres (1899) and 29.5 acres (1941); Horticulture Farm, 62.5 acres (1916); Animal Husbandry Farm, 231 acres (1916) and 262.5 acres (1941), including a portion for Poultry Husbandry; Agronomy Farm, 178 acres (1961), transferred to the University by the City of Morgantown in exchange for the old Agronomy Farm and other considerations which are to be used for the extension of the Morgantown Airport; and Poultry Husbandry Farm, 20 acres (1916) now used by Dairy Husbandry, all near Morgantown; University Experiment Farm at Kearneysville, Jefferson County, 158 acres (1930); Reymann Memorial Farms at Wardensville, Hardy County, 930 acres (1917) and 57 acres (1953); Reedsville Experiment Farm, Preston County, 457 acres (1944); Ohio Valley branch, Mason County, 150 acres (1948); Tygart Valley Farm (Forestry), Randolph County, 495 acres (1949); Camp Russell Love Morris (Engineering), Preston County, 53.5 acres (1950).

The Cooperative Extension Service centers, with dates of establishment, are the State 4-H Camp at Jackson's Mill, Lewis County (1921), and the Recreation Center at Oglebay Park, Ohio County (1926).

THE ARBORETUM

The West Virginia University Arboretum was established August 4, 1948 on a 100-acre tract of open field, wooded hillside, and low, moist bottom land situated between the Monongahela Boulevard and the Monongahela River. An elevation drop of approximately two-hundred feet, from the Arboretum entrance on the boulevard to the river, presents a variety of natural habitats in which

several hundred species of native West Virginia trees, shrubs, and herbaceous plants may be seen.

Designed primarily as an outdoor biology laboratory for educational purposes, the Arboretum is also important for its aesthetic value to the general public. It offers a place for research and study and a place for rest and relaxation. Approximately three and one-half miles of nature trails lead through the area and are so arranged that the visitor may take from a short half-hour stroll to as much as a four-hour hike without retracing steps.

Organization

OPERATING FUNDS

Funds for operating the University's various divisions are derived from the following sources: (1) interest on the land-grant endowment of $129,600; (2) annual appropriations by the Legislature; (3) Federal Morrill-Nelson and Bankhead-Jones funds; (4) student activities fees; (5) Hatch Act, Amended; (6) Agricultural Extension Consolidated; (7) tuition of high school students paid by Monongalia County Board of Education; (8) income derived from sale of farm and dairy products, as well as income from athletics, dormitories, dining halls, book store, student activities, hospital clinics, etc.; (9) grants by Federal agencies for special research and extension projects; (10) contributions by private benefactors for the support of scholarships, loan funds, and prizes, and (11) revenues from the State soft-drink tax dedicated to the establishment of a medical center for teaching and research in medicine, dentistry, nursing, and medical technology.

GOVERNMENT

Direction of educational, administrative, financial, and business affairs of the University is vested in the Board of Governors. The board is bipartisan and consists of nine members who are appointed by the Governor with staggered terms of service.

The University year is divided into two semesters of approximately eighteen weeks each and a Summer Session of ten weeks.

Acting in an advisory capacity to the President and assisting him in carrying out established University policies is a *Council of Administration*, composed of the President, the Vice President-the Medical Center, the Registrar, the Comptroller, and the deans of all colleges and schools, as well as other administrative officers who may be requested to take part in the deliberations of the Council.

The *University Senate*, a legislative body with jurisdiction over all academic matters that concern the entire University and all matters that concern more than one college or school, is composed of the President, the Vice President-the Medical Center, the Registrar, all professors, associate professors, and assistant professors in all colleges, schools, and divisions, and all chairmen of departments.

The *Graduate Faculty*, composed of all members who teach courses on the graduate level, sets the specific requirements and standards of quality for admission to candidacy for graduate degrees and for the awarding of graduate degrees.

The *Committee on Student Affairs* acts as an integral part of the whole organization of the University. Its program is bound up with that of the University as a whole and is designed to serve the larger academic and social objectives of modern education. For a list of members, see page 7.

COLLEGES AND SCHOOLS

The components of the University, together with dates of establishment of the various colleges and schools, etc., follow:

Colleges: College of Arts and Sciences, 1895; College of Law, 1895; College of Engineering and Mechanic Arts, 1895 (changed to College of Engineering in 1960);

College of Agriculture, 1895; College of Education, 1927; College of Pharmacy (changed to the School of Pharmacy in 1958), 1936; and the College of Commerce, 1952.

Schools: School of Music, 1897; the Summer Quarter, 1898-1900, Summer School, 1902-1931, and Summer Session, 1932; School of Medicine, 1912; School of Mines, 1926; Graduate School, 1930; School of Physical Education and Athletics, 1937 (changed to School of Physical and Health Education, Recreation, and Safety, 1960), School of Journalism, 1939; School of Dentistry, 1953; School of Pharmacy (formerly the College of Pharmacy), 1958, and School of Nursing, 1960.

Divisions: Division of Military Science and Tactics, 1911; Division of Military and Air Science and Tactics, 1949; Division of Military Science and Tactics and Air Science, 1955; Division of Military Science and Air Science, 1960; Division of Home Economics, 1937; and the Division of Forestry, 1937.

Experiment Stations and Research Bureaus: Agricultural Experiment Station, 1888; Engineering Experiment Station, 1921; Government Research Bureau, 1931-1935; Bureau for Government Research, 1949; the Bureau of Business Research, 1949, and the Coal Research Bureau, 1962.

Extension Service: Agricultural Extension (Cooperative Extension 1961), 1912; Mining and Industrial Extension, 1914; Education Extension, 1915; Liberal Arts Extension, 1916; University Extension, 1930; and the Institute of Industrial Relations, 1956.

The College of Agriculture, Forestry, and Home Economics; the College of Arts and Sciences, the College of Engineering; the School of Mines, the School of Music, the School of Nursing, and the School of Physical and Health Education, Recreation, and Safety are all degree-granting units admitting freshmen. The College of Education, the College of Commerce, the School of Dentistry, the School of Journalism, the School of Medicine, and the School of Pharmacy are professional colleges and schools requiring from two to three years of academic training as a foundation for professional work. All graduate instruction is administered by the Graduate School through the Graduate Faculty.

DEVELOPMENT OFFICE

The development program of West Virginia University coordinates much of the complexity of financing and improving educational activities, and is centered in the Development Office, jointly maintained by the University and by the West Virginia University Foundation, Inc.

Through this office, all voluntary support of the University is channeled, including support from alumni and friends on an annual basis; from industries and businesses, both within and outside West Virginia; from individuals, through major gifts and bequests; from charitable foundations; and from various governmental agencies, other than annual legislative allocations.

The program's primary aim is to blend into one strong supporting unit all the various "publics" of the University, including the institution's alumni, friends, faculty, governing body, students and parents, various state interest groups, industrial and corporate groups with a stake in the University's future, and all philanthropic and governmental sources of educational aid.

THE SUMMER SESSION

The Summer Session is ten weeks in length. It opens in June and closes in August.

University High School is in session for secondary-school student teaching, practice supervision, and observation. The University Laboratory Elementary School is in session during the first six weeks for elementary school observation and practice supervision.

Requirements for admission and character of the work offered are the same for the Summer Session as for the regular academic year.

Credit may be obtained towards the Bachelor's, Master's, and toward the Doctorate. Offerings are varied from summer to summer so that students may complete work for the Master's Degree by attending summer sessions only.

For complete information and description of courses, see the *Summer Session Bulletin.*

INTERCOLLEGIATE ATHLETICS

The basic objectives of Intercollegiate Athletics at West Virginia University are:

1. To provide an opportunity for students highly skilled in athletic sports to develop their ability as a preparation for coaching positions, as teachers of physical education, and for their own physical, social, and emotional improvement.
2. To develop an understanding and an appreciation of the place which intercollegiate sports occupy in American culture and to develop sound educational attitudes toward sports.
3. To educate the student body in the appreciation of sports and the best way to enjoy them from the point of view of good sportsmanship.
4. To serve as a focal point for the morale, spirit, and loyalty of the students by providing a common meeting ground and enthusiasm.
5. To provide a wholesome program of sports in which students, alumni, and friends of the University may share, to the end that the loyalty of these groups to the University and its work may be constantly renewed, strengthened, and united.

Additional objectives of the Intercollegiate Athletic program are:

1. To set desirable examples of good physical skill, team play, sportsmanship, health habits, and other characteristics that go with skilled sports, both individual and team.
2. To provide a living laboratory of democracy in action, where all players are treated without favor or prejudice, to learn to respect the rights of others, obey the rules, and judge others for what they can do.
3. To broaden the social experience of players and spectators through travel, visiting other schools, and making the acquaintance of other young people of similar age.

Activities of the Department of Intercollegiate Athletics are administered, under the President of the University, by the Director of Intercollegiate Athletics and by the Athletic Council. The council is composed of seven members: four faculty, two alumni, and one student. The Dean of the School of Physical and Health Education, Recreation, and Safety serves as a member, and the Director of Athletics is the executive officer.

Instruction and training are given each year in the seasonal sports such as football, cross-country, basketball, wrestling, baseball, swimming, gymnastics, track, tennis, rifle, golf, and soccer. Matters concerning athletic eligibility regulations are decided by the Athletic Council. Scholastic eligibility regulations are established by the faculty of the University.

The rules and policies of the Southern Conference govern participation in intercollegiate athletics. In addition, sophomores must have a 1.5 grade-point average, juniors a 1.7 average, and seniors a 1.9 average.

INTRAMURAL PROGRAM

A broad intramural sports program for men and women is provided by the School of Physical and Health Education, Recreation, and Safety. It aims to encourage all students to participate in organized sports and wholesome recreation. Competition is promoted between student groups and individuals. Such natural groupings as classes, fraternities, sororities, dormitories, and other nonfraternity units form the basis for activity in competitive sports.

The following activities are conducted for men: soccer, badminton, cross-country, tennis, volleyball, handball, basketball, swimming, relays, golf, bowling, archery, basketball free throwing, softball, horseshoes, and outdoor track. Other activities may be organized when there is sufficient interest on the part of students and when facilities permit. Leagues are organized to accommodate fraternities, residence halls, and nonfraternity groups.

The following activities are conducted for women: volleyball, badminton, swimming, basketball, bowling, softball, table tennis, shuffleboard, archery, and tennis.

Interclass tournaments for physical education majors are held in the following activities: volleyball, badminton, basketball, swimming, tennis, and softball. As the demand for more activities develops and when facilities become available, the program will be broadened.

ASSOCIATED INSTITUTIONS

The West Virginia Academy of Science was organized in 1924 to bring about closer affiliation among scientists of the State and to encourage the pursuit of scientific work in West Virginia. It is now a body of nearly five hundred persons who are interested in the service of science in the development of the State. Members are widely distributed throughout the State and adjoining states and are representative of colleges, high schools, and industries. A Collegiate Academy and a Junior Academy are sponsored by the Senior Academy. Annual meetings, held at the various institutions of higher learning, are divided into sections on biology, chemistry, geology and mining, mathematics and physics, education, psychology, and social sciences. The *Proceedings* of the annual meeting are published under the auspices of the University and the Academy.

The West Virginia Geological and Economic Survey, situated at West Virginia University, is governed by its own Commission and receives separate appropriations. The Geological Survey was founded by an Act of the Legislature in 1897 and has functioned consistently since that date. It is recognized as one of the leading State surveys.

One of its major purposes is to have members of the staff, specialists in their fields, investigate all natural resources, especially mineral resources of the State, and make results of the investigations available to the public in the form of written reports and maps.

Accomplishments of the Survey include geologic and topographic mapping of the State, as well as preparation of numerous special reports on the State's mineral and other natural resources. A new topographic mapping program, using aerial photographs, is well under way.

Core drill examinations of river terrace deposits and mineral investigations of rock strata are now being made with new equipment recently acquired.

A Division of Archeology has been included in the Survey's new activities.

The professional staff is composed of eight geologists, a sedimentary petrographer, a spectroscopist, an engineer-cartographer, a librarian-editor, a cartographer-draftsman, and two archeologists. The State Geologist is a member of the faculty and there is close cooperation between the Geological Survey and the Department of Geology of the University. Faculty members and geology graduate and undergraduate majors are employed on part-time bases. Three geologists from the U. S. Geological Survey are assigned here for cooperative studies on ground waters. The large collection of well cuttings and cores on file bring petroleum geologists from major petroleum companies throughout the United States here to study them.

The Materials Laboratory of the State Road Commission is housed in the Engineering Sciences Building. Its work includes testing of all materials used by the Commission and research problems of road construction and maintenance in West Virginia. The State Road Commission and the College of Engineering cooperate on research and development programs.

APPALACHIAN CENTER

The West Virginia Center for Appalachian Studies and Development was established by the West Virginia University Board of Governors in 1963.

This intra-University organization, called Appalachian Center, was established to identify, regroup, and to set into coordinated purposeful action those major activities which relate the University to the State and to the Appalachian region. The Appalachian Center concept embodies a realignment and concentration of those University functions which are oriented toward direct public service. It mobilizes into one coordinated effort all special public service skills—extension, consulting, research, and planning—so as to bring them to bear on meeting the public needs of the present and for defining public goals for the future.

It aims to be a vital force in the destiny of West Virginia. The University plans to exercise every possible effort to project knowledge into life's daily experiences. The points of focus will be the people's attitudes, the human and natural resources, the capital base, and international affairs.

Its objectives are: to help to determine the key issues, problems, and opportunities basic to West Virginia's future; to provide maximum encouragement to the economic, social, cultural, and political development of West Virginia through discovery and dissemination of knowledge using inter-disciplinary task forces and competent resources; to be a vehicle for generating continuous Statewide planning, goal setting, and intensive discussion; to organize and encourage continuing life-long education as essential to life's experiences; identify leaders, equip them intellectually, impart skills, and keep them competent; to encourage development of various arrangements within the University in order that academic and public concerns go hand-in-hand; to insure the concerted and unified participation of those divisions of West Virginia University which are directly concerned with the relationships between University and State; to involve and support State educational institutions, State and federal agencies, and community organizations in unified development programs; to serve as a rallying point for gathering, indexing, and focusing knowledge for the Appalachian Region; to assist young people through youth development programs to realize their potential competency; and to accept a true University responsibility to further education in international affairs.

The program units of the Appalachian Center include the Office of Research and Development; the Cooperative Extension Service; General Extension and Labor Education; Mining and Industrial Extension, International Programs, Parkersburg Branch College, and the Kanawha Valley Graduate Center.

Office of Research and Development

This program unit is generally responsible for coordination of the research and planning activities of the University through the Appalachian Center, investigations and tests that relate to economic and social development of the Appalachian Region, collaboration with the various research bureaus and stations of West Virginia University, helping obtain cooperative research endeavors with other institutions and agencies of West Virginia and in other states of the Appalachian Region, making available the computer service for practical uses, and coordination of the "information storehouse." Research and investigations undertaken by this office will relate to problems identified as important to the welfare of West Virginia and the Appalachian Region.

Cooperative Extension Service

This program unit functions within the framework of the Appalachian Center and within the official agreement between the University and the United States Department of Agriculture, the eight approved project agreements between the Director of the Cooperative Extension Service and the Federal Extension Service, USDA, and the legal authority established by West Virginia. It assumes responsibility for Appalachian Center extension programs of informal education as related to youth development, agriculture production and marketing, consumer education, family-oriented projects, community improvement, resource development and conservation, public affairs, rural and urban county extension programs (through the Appalachian centers), and coordination of specialist programming in field activities.

General Extension and Labor Education

This program unit is responsible for extension courses of instruction for credit and non-credit, for Appalachian Center conferences, seminars, symposia, and certain specialized training courses. The Labor Education Service, through training programs and research activities, assists in the development of leadership and needed educational programs within and for those requesting it. Examples include consumer education, health, welfare, and social security benefits, and economics.

Mining and Industrial Extension

This program unit is responsible for leadership and development of an industrial extension education program; it will carry out technical education and special training, and promote safety, efficiency, and conservation of natural resources in the coal mining industry of West Virginia.

International Programs

This program unit is responsible for the cooperative programs with the U. S. Agency for International Development; for inter-nation education contracts and agreements; and for administering and developing the overseas commitments of West Virginia University as they occur. It also leads in developing a favorable climate for public concern with affairs of international importance.

Parkersburg Branch

This program unit is a fully integrated component of West Virginia University. Development and administration is done through the Appalachian Center. Its program, always to be kept on a par with West Virginia University's standards, is the responsibility of the academic leadership as designated by the President of the University. The Parkersburg Branch maintains close liaison with the Parkersburg College Fund, a non-profit corporation, which was established in 1961 to coordinate voluntary financial support of the branch. The members of the fund are local professional and business leaders.

Kanawha Valley Graduate Center

This program unit, established by legislative direction in 1958 and implemented by the Board of Governors Order No. 1928, serves as a West Virginia University Graduate Center and is fully integrated into the University structure. Its academic programs coincide with those in Morgantown. The academic program is under the direction of the Dean of the Graduate School and the University Committee on Graduate Centers. However, responsibility for developing and administering is with the Appalachian Center. The present graduate programs are in chemistry, chemical engineering, business administration, mechanical engineering, and civil engineering. Other programs are possible with proper support. The Kanawha Valley Graduate Center Committee, representative of the professional societies and dominant types of industry, keeps in close contact with the progress, problems, and needs of the Center. The committee assumes a major responsibility in assuring the necessary finances for operation of the Center.

Extension Courses

The work given in extension courses corresponds in every particular to that given in the same courses on campus. Students taking extension courses for credit must satisfy all requirements for admission to the University and, before registering, must file with the Registrar of the University complete official transcripts of record.

The *maximum undergraduate credit* that may be counted toward any degree for extension work conducted by the University is 48 semester hours. The *maximum undergraduate credit* that may be counted toward a degree for extension work taken in other institutions is 30 semester hours. No more than 15 hours of work taken in *graduate extension courses* may be counted toward any degree, and of these only 8 semester hours may be in one field. Education majors are limited to 12 semester hours that may be counted toward the completion of the Master's Degree. No more than 8 of these hours can be taken in extension prior to earning 6 hours in Education *in residence* in the University. For other regulations on graduate extension for Education majors see the *Announcements* of the College of Education.

No University extension courses may be offered without the approval of the Director of University Extension. Library and laboratory facilities for each course

must be approved by the Director and, in case of courses for graduate credit, by the Dean of the Graduate School. Reference books for the use of extension students may be borrowed from the University Library upon the order of the Director of University Extension, subject to the approval of the Library committee. Postal charges must be paid by the individual or groups for whom the books are borrowed.

A fee of $12.00 per semester hour is charged for each extension course offered. For further information write to the Director of University Extension.

Evening Education

The University offers a program of evening classes for the benefit of those who wish to continue their education beyond the high-school level and who are unable to attend the usual day classes.

All courses are taught by resident faculty members and carry full college residence credit. Many of these courses may be counted toward advanced degrees.

Guided Reading Courses (Correspondence)

The Extension Division offers twelve reading courses through correspondence. While these courses are offered in cooperation with the West Virginia Federation of Women's Clubs, any adult may enroll for any of these courses by applying to the Director of University Extension. The fee is $1.00 per course. The reader sends in short reports on the books he reads in each course. When the course has been satisfactorily completed, a progress card from the West Virginia University Extension Division is awarded. These courses carry no University credit but are designed to provide adults with some of the best reading materials in the areas covered through this program. The courses include: (1) World Affairs; (2) Modern America; (3) Psychology for Everyday Living; (4) Happy Family Relationships; (5) Novel and Biography; (6) Ideas in Conflict; (7) The Home Beautiful; (8) Design for Outdoor Living; (9) Leadership; (10) So You've Been Elected; (11) Science and the Modern Man, and (12) Something About Art.

Services

MOUNTAINLAIR

Mountainlair, the temporary University student center, has served the campus since 1948 in providing programs, activities, and services for the social, cultural, and recreational needs of the campus community. Located near the northeast end of Mountaineer Stadium, Mountainlair hosts major campus social events, and provides a special array of programs throughout the academic year. The Mountainlair calendar includes parties, dances, a popular film series, art displays, exhibits, and concerts.

The facilities include a large combination snack bar-cafeteria, four bowling lanes, a television area, a browsing lounge, a music listening room, meeting rooms, office space, and a large ballroom that also serves as a table tennis and billiards area

The key word at the Mountainlair information desk is "service." As the campus information center, this booth renders many worthwhile services to accommodate the University community.

The swimming pool in the building is of regulation intercollegiate size. In addition to providing recreational swimming facilities for University personnel, it serves as the home of the University swimming team and as a classroom for students majoring in physical education.

A professional staff devotes full time toward creating and maintaining a pleasing atmosphere for students. Diversified programs of activities and events are designed to fit student needs and interests. Special activities are planned by the Mountainlair Program Council. The Council includes student representatives of the various campus factions.

The building is open from 7:00 A.M. to midnight, Monday through Saturday, and from 12:00 noon to midnight, Sunday.

UNIVERSITY PERSONNEL DEPARTMENT

The University Personnel Department was created to provide a variety of personnel programs designed to assist the teaching, research, administrative, service, and maintenance units of the University in performing their vital functions. These programs include applicant recruiting, testing and employment of full-time, part-time and student employees; wage and salary administration for all non-academic employees; employee training, and special employee services.

The central Personnel Department is located in Room 108 of the Mineral Industries Building. A branch office of the central Personnel Office is located in the University Hospital on the Medical Center Campus.

The employment office of the central personnel office and the Medical Center branch office are both concerned with University-wide employment opportunities existing on all campuses. Therefore, one application submitted at either convenient office is all that is necessary to be considered for any opportunity existing on any campus of the University.

Student Employment

Students seeking full-time or part-time employment on or off the campus may receive service and assistance from the Personnel Department. All employment opportunities are posted each week on the bulletin boards located on all three campuses. Any student interested in a position which has been listed should go to either personnel office during the regular hours (8:15 A.M. to 12:00 noon; 1:00 to 5:00 P.M.) and apply for the position. Qualified students will be given a referral introduction to the prospective employers.

EMPLOYMENT AND PLACEMENT

The Senior and Alumni Placement Service

The University Placement Service is maintained to provide assistance in vocational and job selection. This centralized service of the University does not end with placement of the student on his first job, but may be referred to at any time in the future.

The Placement Office is on Hunt Street across from the Physics Building. In addition to registration procedures, which include counseling in the techniques of job application, this service analyzes the changing market for graduates, assists alumni seeking promotion or change of position, cooperates with all individuals and agencies interested in placement, provides credentials for registered students to potential employers, and is engaged in continuous research in the interest of improving these services. A meeting place is provided for students seeking jobs, visiting company, governmental, and educational representatives, and faculty members whose comments are sought by employers.

A vocational library is maintained to assist any student having difficulty in deciding upon a career as well as to enable those graduating to review the kinds of opportunities available in their fileds.

The Placement Service cannot furnish credentials to commercial agencies.

HEALTH SERVICE

The University Health Service provides medical care to students of the University and supervises health on the campus. The staff includes three full-time and two part-time physicians, seven nurses, two laboratory technicians, and clerical personnel. The University Pharmacy, housed in the Health Center, is managed by the School of Pharmacy. The departments of Pathology and Microbiology cooperate in the laboratory examination of diagnostic materials.

The Health Service occupies the University Health Center, constructed in 1942. This three-story building is centrally located, fronting on College Avenue adjacent to Reynolds Hall. It is built of brick and concrete and is fireproof throughout. On the first floor are the treatment rooms, offices, and pharmacy. The second floor is occupied by laboratory and X-ray departments, and offices for physicians. The third floor contains a well-equipped Infirmary.

The Health Service is in operation from 8:00 A.M. to 5:00 P.M. daily except Saturday and Sundays. Saturday hours are 8:00 A.M. to noon. Physicians are in attendance from 9:00 A.M. to 12:00 noon and 2:00 P.M. to 5:00 P.M. A nurse is present at all times in the Infirmary, and a University physician can always be reached by calling the Health Service, Extension U294 on the University exchange.

Each officially enrolled University student pays a fee which provides for medical consultation and advice from University physicians. Moderate additional charges are made for room calls, X-rays, laboratory tests, minor operations, treatment of fractures, and drugs furnished by the Health Service or Pharmacy.

The Health Service gives special physical examinations to students in competitive athletics, to University food handlers, to employees of the Physical Plant Department, and to other groups as occasion may arise.

The Infirmary

Students who need bed care for medical illness are hospitalized in the University Infirmary. The Infirmary is open only to full-time students. It is the policy of the Health Service to have all students requiring such care in the Infirmary. Students hospitalized in the Infirmary are under the care of Health Service physicians, although other qualifed physicians may be seen in consultation when necessary. Patients will be admitted and discharged on the order of Health Service physicians.

Upon admission to the Infirmary the student receives two days of hospitalization without charge except for laboratory, X-ray, special medications, and private duty nurse fees. No additional charge is made for general nursing care, dressings, routine medications as commonly supplied by the Health Service, and food as ordered by the physician in charge. Laboratory examinations, X-rays, penicillin, and similar medication will be charged at the usual Health Service rate to students. Special nurses, when necessary, are at the expense of the student.

A student may not receive more than thirty days hospitalization for any one illness. Patients are to leave when discharged by the University physicians. When it becomes evident that a student's illness will be so prolonged as to prevent his completing work of the current semester, he may be discharged from the Infirmary when the attending physician or the Director of the Health Service considers that he may be moved without danger to his health. The services as indicated above are subject to the availability of space in the Infirmary. Twenty-two beds at present are ready for use.

Student Insurance

A voluntary insurance plan is available to students to supplement the medical care offered by the Health Service. This plan provides for payment for hospitalization, surgeon, and consultant's fees, and other medical costs throughout the year, both in Morgantown and elsewhere. For cost of this insurance and details concerning coverage see the brochure available at the Health Service.

STUDENT COUNSELING SERVICE

The University provides diagnostic testing and counseling for students with educational, vocational, and personal adjustment problems. These services are provided by clinical psychologists from the faculty and staff of the Department of Psychology.

The Student Counseling Service is a voluntary, confidential resource for students. It is located on the third floor of Oglebay Hall. The service is available from 8:30 A.M. to 5:00 P.M. daily, except Saturdays and Sundays.

SPEECH AND HEARING CLINIC

The Speech and Hearing Clinic, operated under the direction of the Department of Speech, offers services to all students in need of treatment for various types of speech disorders such as articulation, voice, and stuttering problems. In addition, work is done with students who have hearing problems. Non-students who have speech defects resulting from cleft palate, cerebral palsy, brain lesions,

deafness, etc. also receive diagnostic workups and therapy if indicated. All work is in charge of professionally trained and fully qualified speech clinicians who have been certified for this type of work by the American Speech and Hearing Association. The Clinic contains specially designed rooms which permit individual as well as group therapy with children and adults. Therapists in training at both the undergraduate and graduate level participate in therapy under supervision.

LIBRARY

The Library provides books and related materials for teaching, research, and cultural purposes. It maintains well-balanced collections in all subject fields included in the University curricula. Although primarily intended to supply the needs of the faculty and students of the University, the collections are available to any resident of West Virginia through the Library Extension Service Department. Facilities are available for the reproduction of material by microfilm and photostat.

The holdings of the University Libraries include 520,000 books and government documents, 34,000 maps, 8,500 reels of microfilm and over 50,000 technical reports. The bulk of this material is housed in the General Library. The other major collections are the Agricultural-Engineering Library (37,000 volumes), the Law Library (65,000 volumes), and the Medical Center Library (61,000 volumes). Some 5,000 periodicals are received currently. The Library is a depository for United States government publications.

The West Virginia Collection, located in the General Library, contains over three million manuscripts, papers, and records relating to the history and development of the State. The Audio-Visual Department has some 1,800 educational films and 600 filmstrips, as well as 3,000 recordings.

During regular sessions, except on holidays and vacations, the Library is open from 7:55 A.M. to 10:00 P.M., Monday through Friday; from 7:55 A.M. to 5:00 P.M. on Saturdays; and from 2:00 P.M. to 10:00 P.M. on Sundays. During the Summer Session the weekday hours are from 7:55 A.M. to 9:00 P.M.; and only the Reserve Collection is available on Sundays from 2:00 to 5:00 P.M. During periods when the University is not in session, the hours are from 9:00 A.M. to 5:00 P.M. Monday through Friday; 9:00 A.M. to 12:00 noon Saturdays; closed all day Sundays and holidays (New Year's Day, Memorial Day, July 4, Thanksgiving Day, and Christmas Day). Changes in scheduled hours are posted in advance.

COMMUNICATIONS AND PUBLICATIONS

University Broadcasting

West Virginia University has been active in radio broadcasting since the early twenties, and in television during the past eleven years.

The Department of Radio, Television, and Motion Pictures plans and produces programming from all areas of the University. The Cooperative Extension Service, the School of Journalism, the School of Music, and the Department of Speech are particularly active in broadcasting activities.

Most programs are prepared for presentation over West Virginia's fifty-one commercial radio stations and nine television stations. Radio programs are prepared on campus. Most television presentations are recorded on video tape at area commercial and educational stations and distributed statewide.

Students interested in broadcasting techniques and participation opportunities are offered actual experience in the preparation and presentation of University radio and television productions. Participation in these programs is through formal work in departments offering technique courses, as extracurricular activities, and as individual interest in production work.

Coverage of intercollegiate athletic events is under the supervision of the Director of University Relations and the University Athletic Council.

Publications

The following publications are issued regularly at the University:

1. The *West Virginia University Bulletin* is issued monthly. The series includes this *Catalog* and the *Announcements* of the various colleges, schools, divisions, and other occasional University publications.

2. The bulletins and circulars of the Agricultural Experiment Station.

3. The circulars of the Cooperative Extension Service, including *Farm Women's Club* leaflets, *4-H Suggestions, Treasures of the Trail,* and special pamphlets.

4. Cooperative News Service bulletins published weekly by the College of Agriculture, Forestry, and Home Economics.

5. The bulletins of the Engineering Experiment Station and of the School of Mines.

6. The *West Virginia Law Review,* official publication of the West Virginia Bar Association, edited by the faculty of the College of Law.

7. Miscellaneous publications under the title of *Philological Papers* or *Biological Studies.*

8. *The Student Directory,* annual directory of the student body, published by the University Book Store.

9. The annual *Proceedings* of the West Virginia Academy of Science.

10. The *West Virginia Fourth Estatesman,* a quarterly publication, edited by the faculty of the School of Journalism.

11. *Notes for New Mountaineers* is published under the direction of the Office of Publications. It is distributed to each member of the entering class, and to transfer students and foreign students.

12. *The Faculty Directory* is issued in the fall by the Office of Publications.

13. Miscellaneous publications of the Bureau for Government Research and the Bureau of Business Research.

14. The *Daily Athenaeum,* student-edited newspaper, is published Tuesday through Friday mornings by students of the School of Journalism. Heads of the editorial and business staffs are appointed by the University Committee on Student Publications from a list of eligible candidates certified by the Dean of the School of Journalism.

15. The *Monticola,* student yearbook, is published by upperclass students. The editorial and managerial staff is appointed by the University Committee on Student Publications.

16. *Victorian Poetry,* a critical journal of Victorian literature, is edited by the Department of English and the Office of Publications.

17. *The WVU Woman,* a handbook for and about the women students of the University, is published by Associated Women Students under the editorial supervision of the Office of Publications.

18. Annual publication of the Program for the *Festival of the Fine and Lively Arts,* an event sponsored by the School of Music and the College of Arts and Sciences. The bulletin is printed under the supervision of the Office of Publications.

19. Miscellaneous publications of the West Virginia Center for Appalachian Studies and Development, and Office of Research and Development.

20. Miscellaneous publications of the University Library.

CAFETERIAS

The Main Campus Cafeteria is open for three meals daily except Sunday. There is no breakfast on Sunday. The cafeteria is open every weekend while school is in session. It observes all University holidays and opens and closes with the University schedule. Banquets and reservations can be arranged. The Evansdale Cafeteria, located in the Agricultural Sciences Building, is open for snacks from 7:30 A.M. to 4:30 P.M., Monday through Thursday, and closes at 4:00 P.M., Fridays. A hot meal is served from 11:30 A.M. through 1:00 P.M. daily. There are two cafeterias located at the Medical Center.

BOOK STORES

The University operates on each campus a complete book and stationery store where students may purchase the books, supplies, and professional equipment needed in connection with their class work.

The Book Store on the Main Campus is located in the Book Store Building, with entrances from both Hunt Street and University Avenue. The Medical Center Branch Book Store is in the Basic Sciences Building, ground floor, across from the snack bar. The Evansdale Campus store is in the Engineering Sciences Building, ground floor, across from the student lounge. The store at the Parkersburg Branch is located adjacent to the classroom building, in the same building as the gymnasium.

The stores sell new and used textbooks and buy back from students their used textbooks. They stock books other than textbooks in all categories, art prints, general school supplies, office supply items, medical and engineering instruments and supplies, physical education uniforms for men and women, sporting goods, and University imprinted souvenir, gift and wearing apparel merchandise.

FACULTY ORGANIZATIONS

American Association of University Professors. The West Virginia University chapter of American Association of University Professors has a membership of approximately one hundred and twenty. The present officers are: Thomas W. Gavett, president, Ruel E. Foster, vice-president, and Mary Catherine Buswell, secretary-treasurer.

The West Virginia University Faculty Club is composed of teaching and research staff and qualified friends of the University. Registered nurses are eligible as junior members. With a varied program of social and cultural activities, the club promotes closer ties between the branches of the University. The club house is located at 511 North High Street. Officers are Helen Pavlech, president; Wayne W. Luchsinger, Igor V. Sarkissian, Ellen L. Sumner, and William E. Vehse, vice-presidents; Charles H. Vehse, treasurer; and Babette Graf, secretary.

Student Affairs

DIRECTOR OF STUDENT AFFAIRS

Student activities and welfare are under the administration of the Director of Student Affairs. His office is located in Martin Hall, along with the offices of his associate and assistant.

DEAN OF WOMEN

All interests of women students are in the hands of the Dean of Women. Her office and that of her assistant are on the main floor of Elizabeth Moore Hall.

Standards of Student Conduct

A student is expected to show both within and without the University unfailing respect for order, morality, personal honor, and the rights of others. This rule is construed as applicable at all times, in all places, to all students of the University. A student may at any time be removed from the University if his presence is not conducive to the best interests of the University.

The University maintains very stringent standards of honesty in academic work. Both students and faculty are committed to the discouragement of cheating in all forms. Uniform procedures for hearing, investigating, handling, and disposing of cheating cases are established throughout the University (see page 31).

All matters of discipline are under the jurisdiction of the Director of Student Affairs and the Committee on Discipline. No student may be expelled without approval of the President of the University.

Student Marriages

If any student under the age of twenty-one years, who has not been previously married, intends to marry within the school year, he or she must obtain the consent of the parents (or of the parent living; if the parents be living separate and apart, of the one accorded the custody of such person) or guardian before such marriage shall be solemnized, in accordance with the provisions of Section 8, Chapter 48, revised Code of West Virginia, 1931.

In order to insure obedience with both the letter and the spirit of this statute and the policy of the University such student, no less than one week before said marriage, must show satisfactory evidence to the Director of Student Affiars that consent of the parents or guardian as required by the statute has been obtained.

In the event that such student does not make such showing to the Director of Student Affairs, regardless of where the marriage ceremony is performed, he or she may be suspended, and may only be reinstated upon showing satisfactory reason to the Council of Administration why he or she failed to comply with this regulation.

Where both parties to the marriage are students and one has not complied with this rule, both may be suspended.

Return of Books to Library

Students must present a signed statement from the Librarian that they have returned all books and paid all library fines before withdrawing from the University or before graduation.

Campus Parking Regulations

Students are required to observe all rules and regulations of the University concerning automobile parking. Full information is available in *Notes for New Mountaineers* or from the Information Desk, located in the lobby of the Administration Building.

Student Identification Card

An identification card is issued to each full-time student. This card entitles the owner to admission to certain University athletic events, various activities of student government, Health Service, and Mountainlair. Confiscation will result from misuse. The University reserves the right to refuse reissuance of an identification card.

LIVING ACCOMMODATIONS

Residence Halls

The University maintains five residence halls, one for men and four for women. For information as to accommodations and rates, address the Director of Residence Halls.

Room reservations are made for the entire academic year. Students are not released during a semester or at the end of the first semester to live elsewhere.

The following rules are in effect:

Each student who wants a room in one of the halls must file an application with the Department of Residence Halls. The application is sent to the student at the time he is admitted to the University. This form and an advance housing fee of $50.00 must be returned to the Office of Admissions.

No student will be permitted to live in other quarters until after the residence halls are fully occupied. All women students must live either in residence halls, sorority houses, or in houses approved by the Dean of Women.

In assignment of rooms in these buildings all freshmen shall be required to take rooms therein, no freshman being allowed to live outside the residence halls if there is room in them. In enforcing this rule the following exceptions shall be made:

(1) When the parents or legal guardians of students reside in Morgantown or within commuting distance of the University, these rules shall not apply.

(2) When the home of the student is within such distance that it is entirely practicable for him to live in his home and reach the University by car or otherwise for all his classes, these rules shall not apply.

A student who does not claim exemption for the fall semester to live with parents or guardian cannot claim exemption for the second semester unless the parents in the meantime have moved to Morgantown.

(3) When students above the rank of freshman reside in approved sorority or fraternity houses under the supervision of the Director of Student Affairs and the Dean of Women, these rules shall not apply. (Release from dormitory housing to live in these houses will not be granted after August 1.)

(4) When conditions of employment (such as firemen in various buildings and homes, employment on dairy and experimental farms, etc.) require residence on the premises, these rules shall not apply. Students so employed should not request reservations for resident space. All women students must receive approval of the Dean of Women before arranging to work for room and board.

When space is needed for underclass women, no senior sorority woman will be permitted to live in Arnold Hall if there is room for her in her sorority house.

Because of the shortage of residence space for men rooms are assigned only to students whose homes are in West Virginia.

More detailed information may be found in the *Residence Halls Bulletin*, a copy of which will be furnished by the Director of Residence Halls.

Off-Campus Housing

The Housing Adviser is an assistant to the Director of Student Affairs. His office is located at the University Housing Center and will provide information regarding private housing in Morgantown and vicinity. All graduate women students and all men students requiring living accommodations in private dormitories, residences, apartments, or houses may write or call upon the Housing Adviser for assistance. Private housing off-campus is available at reasonable rates within easy walking distance of the campus. Most of these facilities have been approved to meet essential safety, health and other desirable environmental conditions of the student. A few private residences are equipped to board students.

University Apartments

The University operates several hundred furnished and unfurnished apartments for students, faculty, and staff at reasonable rates. For information write to the Apartment Housing Office.

Student Government

University student government provides for three separate departments of government activity: the Student Legislature, the Student Executive Council, and the Student Court.

The Legislature, composed of elected representatives from all colleges and schools, determines policy and exercises control over all student activities proposed by the Executive Council, the administrative body which includes the president and vice-president of the student body, and the president and vice-president of each class. The Court, composed of seven students, handles constitutional revisions and controversial issues of the Legislature and Executive Council.

Student government sponsors many educational and entertaining activities, and coordinates the work of its committee system and of various campus organizations.

Besides providing valuable experience in democratic self-government, student government represents the student body with the faculty, the administration, and with off-campus groups.

CULTURAL ACTIVITIES

The University, through the Committee on Convocations and Public Exercises, provides appropriate and desirable programs for students. The convocations form the basis of the cultural program, but there are others sponsored by various divisions of the University and community.

The University Cultural Series present a special program of outstanding cultural events during each academic year and summer session in the area of drama, music, and the dance.

Convocations consist of addresses by distinguished speakers and musical and other entertainment features of special merit.

During the year students have an opportunity to attend their own legitimate theatre in which plays are presented by the Department of Speech. The University Radio Theatre also is an activity of the Department of Speech.

The University Symphony Orchestra concerts, individual recitals, and glee club concerts are sponsored by the School of Music.

Greater West Virginia Weekend makes a number of cultural activities available to students and their visiting parents. A modern dance recital, music recitals, religious services, and educational scientific exhibits are of the highest value.

In early spring of each year the annual Festival of the Fine and Lively Arts, sponsored by the College of Arts and Sciences and the School of Music, attracts much attention. Features of the Festival have included concerts by off-campus musical organizations; art exhibits; works of the theatre; films; dance presentations; chamber music offerings; recitals by faculty and invited artists; concerts by the University Choir, the University-Community Symphony Orchestra, the University Symphonic Band, and off-campus musical organizations. Other Festival attractions include jewelry exhibits, photography showings, swimming pageants, water color exhibits, and other cultural activities.

SOCIAL ACTIVITIES

Student social life in the University is a carefully planned and supervised part of a student's life on campus. It is guided in such a manner as to offer a wholesome type of pleasure without curbing the institution's main purpose—education of the student.

Social life is under the supervision of the University Social Committee. The committee has supervision of every social function given by the University or by an organization within it, including fraternities, sororities, and other student societies.

The social program is highlighted during the year by Homecoming Weekend, Mountaineer Weekend, Greater West Virginia Weekend, and Commencement Week. The Homecoming Parade is an annual tradition. The Homecoming Dance, of course, is the climax of the celebration. Mountaineer shenanigans on a special fall weekend, set aside by the students, is the most newly-established annual affair.

PROCEDURAL RULES FOR HANDLING CHEATING CASES

General Statement of Policy

Cheating is condemned at all levels and in all areas of life. Like a crippling malady, it leaves its marks subjectively. Cheating indicates a weakness and inability to meet and face the issues and problems of life. It creates an atmosphere of mistrust, disrespect and insecurity. The effects and influence of cheating will necessarily be reflected in commerce and government and in all of the professions and callings, as well as in the classroom and in the home. Students of the University should act to discourage and eliminate cheating of every kind and character for the moral and mental well-being of themselves and their fellow men. Likewise,

it is incumbent on the teaching faculty to remove and eliminate every situation which provides avenues and opportunities for cheating, thereby contributing to the inculation of the principles of honesty, integrity, self-reliance and self-respect of the students. It is expected that University officials will have little occasion to place in operation the established procedures for handling cheating cases. Through these procedures and by means of a continued awareness, on the part of both the faculty and the students, of the intellectually and morally weakening effects of cheating, a healthy strengthening of the moral fiber of the University community may be envisioned and accomplished.

Definition of Cheating

Cheating may be defined as including:

1. Obtaining help from another student during examination.
2. Knowingly giving help to another student during examination.
3. The use of notes, books, or any other unauthorized sources of information during examination.
4. Obtaining, without authorization, an examination or any parts thereof prior to the taking of the examination.
5. Submitting a report, notebook, speech, outline, theme or other problem for credit that has been knowingly obtained or copied in whole or in part from another individual's academic composition, compilation or other product.
6. Submitting or participating in the submission of a report or examination paper falsely represented as being the result of the original efforts of the submitting student.
7. Altering the record of any grade in any gradebook, office or other record.
8. Any other type of misconduct, offense, or manifestation of dishonesty or unfairness in or relating to the academic work.

Procedures for Hearing, Investigating, and Handling Cases

The deans of the several colleges and schools shall have the authority and shall be responsible for the handling of cheating cases arising or occurring within their respective colleges and schools.

Each member of the teaching faculty and all other University employees, including but not limited to assistants, proctors, office personnel, janitors and night watchmen, shall promptly report, via the department chairman or immediate superior, if any, each known case of cheating, as hereinbefore defined, to the dean of the college or school therewith immediately concerned.

Each case of cheating shall be handled with dispatch, and the dean shall promptly report thereon in writing to the President and shall at the same time place a copy of such report in the permanent record of the student concerned and forward another copy thereof to the Director of Student Affairs for his permanent records. In all cheating cases involving women students, an additional copy of such report shall be forwarded to the Dean of Women. The report shall include a brief statement covering the facts and circumstances of the case and the discipline applied or recommended.

In cases wherein cheating occurs in a college or school other than that in which the student is registered, the minimum penalty, as prescribed in the paragraph below, shall be applied by the dean of the college or school in which the cheating occurred. In handling such cases the dean shall follow the procedure in paragraph 3 hereof and then immediately refer the case, by transmittal of a copy of the report thereon as prescribed in paragraph 3 hereof, to the dean of the college or school in which the student involved is registered. The purpose of this copy of the report is for information and for imposition or recommendation of such further discipline or penalty as may be warranted. Upon completion of his review of and action on the case, the dean of the college or school in which the student is registered shall thereupon compose his independent written report on the case and transmit same to the President and otherwise distribute copies thereof as provided in paragraph 3 hereof.

The deans and their respective teaching faculties shall take remedial and preventive steps to remove every opportunity for any situation conducive to cheating.

Particular attention shall be given to the maintenance of a high level of proctoring in those colleges, schools and departments wherein proctoring is employed and to security against student access to or knowledge of examination and test materials prior to the time of the intended use thereof for student examination and testing purposes. The deans shall exercise their independent discretion as to methods and means of accomplishing these ends and may employ thereof faculty meetings, written instructions or other effective devices and measures.

Penalties for Cheating

The *minimum* penalty for all cases of cheating shall be dismissal from the course and the establishment of a grade of "Failure" in the course, as of the date of cheating. *Unless in the opinion of the dean there are extenuating circumstances which might indicate the advisability of a lesser penalty.*

For a second or subsequent cheating offense, in addition to failure in the course, suspension or expulsion of the student shall be recommended by the dean for the President's action. The office of the Director of Student Affairs shall maintain its records of reports in cheating cases so as to detect and ascertain promptly and accurately the occurrence of second or subsequent cheating offenses and, upon inquiry by the dean, shall promptly advise whether the student has been guilty of any prior cheating offense or offenses.

Suspension or expulsion of a student guilty of cheating may, in first offense cases, be recommended by the dean to the President if the facts and circumstances of the case so warrant or the rules, regulations or policy of the college or school concerned so require.

In cheating cases involving criminal offenses, such as theft of examination or test materials, alteration of records, breaking or entering buildings, offices, desks, safes or filing cabinets, damage to public property and other like or similar misconduct, the academic penalties and discipline as herein prescribed shall be applied and, in addition thereto, the dean of the college or school concerned shall, with the approval of the President, cause the facts of each case to be presented to the Prosecuting Attorney of Monongalia County, West Virginia, for his further investigation and for prosecution by injunction or otherwise as may be warranted. Upon the issuance of a warrant for or the return of an indictment against a student on account of any such offense, the President shall suspend such student from the University pending final prosecution thereon. If the student be acquitted of the offense, his suspension may be vacated, but if convicted of the offense, he shall be expelled from the University.

A student may appeal from the decision or action of a dean in a cheating case to the President for review and reconsideration and the President may thereupon affirm or reverse, in whole or in part, the decision or action of the dean.

In his action on any cheating case, whether on appeal by a student or on recommendation or reference by a dean, the President may consider the case record before him, may further investigate or cause to be investigated the facts and circumstances of the case, and may act personally thereon and dispose thereof, or he may, in his discretion, refer the case to another appropriate University office, committee or agency for review, investigation, consideration and recommendation prior to his final action thereon and disposition thereof.

It is recommended that, in all phases of cheating cases, care and caution will be observed so as to avoid any accusation or charge of cheating or related impropriety which may be without foundation. A false accusation may have serious implications and result in reflection on or harm to an innocent and unoffending student and discredit to the faculty.

Student Organizations

Eligibility for Activities

To be eligible to represent the University in public appearances, a student must be enrolled in the University and must meet the eligibility requirements of the department or school in which the activity originates. The records of those

students whose status is questionable should be checked at the Registrar's Office before participation is permitted. This checking should be done by the department or school in question.

To hold an elective or appointive office in a duly recognized student organization a student must be enrolled in the University for at least 12 semester hours; and if in other than his or her first semester in residence, must have maintained a minimum cumulative average of "C," as reported by the Registrar's Office, at the time of election or appointment. After completion of his or her first semester in the University no person shall be pledged to either a social fraternity or sorority unless he or she has attained a cumulative average of "C" as reported by the Registrar's Office at the time of pledging.

Following is a brief listing of all recognized student organizations. Specific details concerning description and membership requirements can be found in *Notes for New Mountaineers* and where applicable in the *Announcements* of the school or college concerned.

ACADEMIC AND SERVICE HONOR SOCIETIES

Alpha Epsilon Delta (Pre-medical)
Alpha Pi Mu (Industrial Engineering)
Alpha Psi Omega (Dramatics)
Alpha Zeta (Agriculture)
Arnold Air Society (Air Force ROTC)
Beta Gamma Sigma (Business Adm.)
Chi Epsilon (Civil Engineering)
Chimes (Junior women)
Eta Kappa Nu (Electrical Engineering)
Gamma Sigma Delta (Agriculture)
Helvetia (Sophomore men)
Kappa Delta Pi (Education)
Kappa Tau Alpha (Journalism)
Li-Toon-Awa (Sophomore women)
Mortar Board (Highest women's honorary)
Mountain (Highest men's honorary)
Omicron Nu (Home Economics)
Order of the Coif (Law)
Order of the Grail (Jr. Men's Honorary)
Pershing Rifles (Military)
Phi Beta Kappa (Arts and Sciences)
Phi Delta Kappa (Education men)
Phi Epsilon Phi (Botany)
Phi Lambda Upsilon (Chemistry)
Pi Delta Phi (French)
Pi Tau Sigma (Mechanical Engineering)
Psi Chi (Psychology)
Rho Chi (Pharmaceutics)
Scabbard and Blade (Army ROTC)
Sigma Delta Pi (Spanish)
Sigma Delta Psi (Men's Sport Honorary)
Sigma Gamma Epsilon (Earth Sciences)
Sigma Gamma Tau (Aeronautical Eng'g.)
Sigma Pi Sigma (Physics)
Sigma Tau Sigma (Tutoring Honorary)
Sigma Xi (Scientific Research)
Sphinx (Senior men)
Spokes (Women's service group)
Tau Beta Pi (Engineering)
Xi Sigma Pi (Forestry)

PROFESSIONAL HONOR FRATERNITIES

Alpha Delta Theta (Medical Technology)
Alpha Kappa Psi (Economics)
Alpha Tau Alpha (Agricultural Educ.)
Beta Alpha Psi (Accounting)
Delta Sigma Delta (Dentistry)
Kappa Psi (Pharmacy)
Lambda Kappa Sigma (Pharmacy women)
Phi Alpha Delta (Law)
Phi Beta Pi (Medicine)
Phi Chi (Medicine)
Phi Delta Phi (Law)
Psi Omega (Dentistry)
Theta Sigma Phi (Journalism women)
Xi Psi Phi (Dentistry)

PROFESSIONAL HONOR SOCIETIES

Mu Phi Epsilon (Music women)
Omega Chi Epsilon (Chemical Eng'g.)
Omicron Kappa Upsilon (Dentistry)
Phi Alpha Theta (History)
Phi Mu Alpha (Music men)
Phi Upsilon Omicron (Home Economics)
Pi Sigma Alpha (Political Science)
Sigma Delta Chi (Journalism men)
Tau Kappa Alpha (Forensics)
Speech and Hearing Society of WVU

NATIONAL AND LOCAL STUDENT GROUPS

The Art Society
Advanced Cadet Club
Agriclub
All Campus Party
Alpha Phi Omega
American Chemical Society
American Institute of Chemical Engineers
American Institute of Industrial Engineers
American Institute of Mining, Metallurgical and Petroleum Engineers
American Pharmaceutical Association
American Association of University Veterans
American Society of Agricultural Engineers
American Society of Civil Engineers
American Society of Mechanical Engineers
Associated Women Students
Block and Bridle Club
Campus Ecumenical Council
Cavalettes
Cosmopolitan Club
Dairy Science Club
Dolphin
Fi Batar Cappar
Forestry Club
Future Farmers of America (Local Group)
Home Economics Club
Il Circolo Italiano
Institute of Electrical and Electronics Engineers
Interfraternity Chaplains Council
Interfraternity Council
Kappa Phi (Methodist Women Hon.)
Mathematics Club
Mountaineer Folklore Society
Mountaineer Rifle Club
Music Educators' National Association
Orchesis
Panhellenic Council
Phi Sigma Tau (Philosophy)
Physical Education Majors' Club (women)
Russian Circle Club
Sigma Theta Epsilon
Society for the Advancement of Management
Student Government
Student Party
University 4-H Club
University Marketing Club
Varsity Club
WVU Amateur Radio Club
WVU Industrial Arts Club
WVU Professional Recreation Society
WVU Student Education Association
WVU Society of Mining Engineers
Young Democrats
Young Republicans
Y. W. C. A.
Institute of Aerospace Sciences

SOCIAL ORGANIZATIONS

Fraternities

Alpha Gamma Rho, Alpha Phi Delta, Beta Theta Pi, Delta Tau Delta, Kappa Alpha, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Kappa Psi, Phi Kappa Sigma, Phi Sigma Delta, Phi Sigma Kappa, Pi Kappa Alpha, Sigma Chi, Sigma Nu, Sigma Phi Epsilon, Tau Kappa Epsilon, Theta Chi.

Sororities

Alpha Delta Pi, Alpha Phi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Gamma Phi Beta, Kappa Delta, Kappa Kappa Gamma, Pi Beta Phi, Sigma Delta (local).

Fraternity Advisers

Alpha Gamma Rho, Prof. R. A. Ackerman; Alpha Phi Delta, Michael Caruso; Beta Theta Pi, Dr. E. W. Crooks; Delta Tau Delta, Dr. John R. Williams; Kappa Alpha, Dr. Donald Hayhurst; Lambda Chi Alpha, Prof. John R. Cresswell; Phi Delta Theta, Dr. John Harley; Phi Kappa Psi, Harold J. Shamberger; Phi Kappa Sigma, Prof. Ralph M. White; Phi Sigma Delta, Dr. Victor J. Lemke; Phi Sigma Kappa, Arthur L. Morris; Phi Kappa Alpha, Dr. Jesse F. Clovis; Sigma Chi, Dr. John T. Welch; Sigma Nu, Edwin L. Kimble; Sigma Phi Epsilon, Avery F. Gaskins; Tau Kappa Epsilon, Kenneth Shaffer; and Theta Chi, Capt. John C. Kite.

Chairmen of Alumnae Advisory Committees

Alpha Delta Pi, Miss Betty Miller; Alpha Phi, Mrs. Joseph Gluck; Alpha Xi Delta, Mrs. Benjamin Ulrich, Jr.; Chi Omega, Mrs. Stanley Cox; Delta Delta Delta, Mrs. Clark Sleeth; Delta Gamma, Mrs. Robert Conner; Gamma Phi Beta, Mrs. Benjamin Stout, Jr.; Kappa Delta, Mrs. Ernest Nesius; Kappa Kappa Gamma, Mrs. Ronald Richardson; Pi Beta Phi, Mrs. Edwin Crooks; and Sigma Delta, Mrs. Laurence Delynn.

Sorority Supervision

Supervision of all sororities is vested in the Dean of Women's office.

ASSOCIATED WOMEN STUDENTS

All women students are members of Associated Women Students. The purposes of this association are: (1) to regulate all matters pertaining to the student life of its members; (2) to further in every way a spirit of friendliness and unity among the women of the University; (3) to increase their sense of responsibility; and (4) to be a medium for maintaining high scholastic and social standards.

Responsibilty for directing the work of the Association rests with the Executive Council, composed of the following members: a president, two vice-presidents, a secretary, a treasurer, and a representative from each class. The officers are elected annually. To be eligible for membership on the Executive Council, a woman must have no less than a "C" average in all her class work.

In 1921, the Association was admitted to active membership in the intercollegiate Association of Student Government for Women Students.

Religious Foundations and Associations

Various State and National church boards have established foundations at the University for the religious education and nurture of students. The churches of Morgantown extend a warm welcome to students of all faiths. The physical plant and equipment of each church is available for social, educational, and recreational activities of students.

Baptist

The Baptist Student Movement at the University is located in the Student Center of the First Baptist Church, 432 High Street. It is sponsored by the American Baptist Convention, and the local church. The B.S.M. includes the Baptist Student Fellowship and the Married Student Fellowship. Their programs encompass church school classes, worship services, evening fellowships, and many other activities. The responsibility for these programs lie with the students and the pastor to students.

Catholic

Newman Hall, 1481 University Avenue, is the social and religious center established by the West Virginia Diocese of the Roman Catholic Church for students of that and other faiths. Newman Hall is a beautiful building of English collegiate architecture immediately adjacent to the campus. It includes a chapel, dining room, lounge, game room, and library. The Paulist fathers are the resident chaplains.

Christian

The *Disciple Student Foundation* provides a program for Christian Church students attending the University. The Foundation is sponsored by the Department of Religious Education of the United Christian Missionary Society at Indianapolis, Ind., the Christian Churches of West Virginia and the First Christian Church at

Morgantown. These three agencies function through a Student Work Advisory Committee. The First Christian Church is the center for Foundation activities and is located at Grand Street and Cobun Avenue.

Episcopal

Trinity Church, at Spruce and Willey streets, is the center for student work sponsored by the Diocese of West Virginia of the Protestant Episcopal Church. This work is under the direction of the rector and the assistant rector. The program includes student worship services and meetings of the Canterbury Club, a chapter of the National Association of Canterbury Clubs, for discussion and fellowship. Canterbury Club meets in Strider Hall, located on the ground floor of Trinity Church.

Greek Orthodox

The *Greek Orthodox Youth of America* conducts student activities at 447 Spruce Street.

Jewish

The Hillel Foundation at the University, 1420 University Avenue, represents the combined efforts of the West Virginia B'nai B'rith Lodges and of the National B'nai B'rith Hillel Foundation to bring the University's students together in religious, cultural, and social activities. Prominent lecturers and speakers are featured at regular intervals by the Foundation for the members of the group and for the general student body.

Lutheran

St. Paul's Lutheran Church is the center of Lutheran student activities sponsored by the Student Service Commission of the National Lutheran Council, the Synod of West Virginia, and St. Paul's Lutheran Church. The work is under the direction of the local pastor. The program includes regular services of the church and activities of the Lutheran Student Association.

Methodist

Wesley Foundation at West Virginia University is housed in Wesley Methodist Church at 503 High Street and provides a worship and activities center for Methodist students in the University. Facilities are provided for worship, religious education, and fellowship. The students plan and execute the program of education, worship, fellowship, community service, settlement house missions, and other activities. Kappa Phi, Methodist women's club, and Sigma Theta Epsilon, Methodist men's fraternity, are sponsored by the Foundation.

Presbyterian

The *Westminster Foundation* of West Virginia represents the cooperative efforts of the Boards of Christian Education and National Missions of the Presbyterian Church, U.S.A., the Synod of West Virginia of the Presbyterian Church, U. S., and the Presbytery of Winchester, to make the Christian religion a vital factor in the experiences of students and in the relationships which these students sustain while in the University; and also, through guided Christian activities in the mine-camp communities surrounding Morgantown, to train among educated men and women future Christian statesmen. The work is under the direction of the student pastor.

United Brethren

The Student Youth Fellowship of the *Evangelical United Brethren Church* conducts student activities at the Church on Burroughs Street in The Flatts. The work is under the direction of the local pastor.

Other Churches

Other churches, while not having special buildings or workers for University students, make definite contributions in ministering to the religious and social needs of students who belong to their particular faiths. College students are welcome in all the churches regardless of their church affiliations. A complete list of churches and services will be found in the bulletin *Notes for New Mountaineers.*

Y.W.C.A.

The *Young Women's Christian Association* is a nonsectarian fellowship of women of the University organized for the purpose of promoting and directing widely varied activities through a religious motive.

Student officers, student cabinets, boards composed of students, faculty, and townspeople, and an executive secretary direct the activities of the Y.W.C.A. The various committees, interest groups, and commissions provide not only their immediate ends, but also opportunity for fellowship and leadership training.

Scholarships, Prizes, Awards, Assistantships, Fellowships, and Loan Funds

Many individuals and organizations who are friends and benefactors of West Virginia University and its students have established scholarships for deserving students. Additional information concerning these scholarships may be obtained from the Scholarship Coordinator, Martin Hall.

Freshman Scholarships

For Students in the College of Agriculture, Forestry, and Home Economics

Rachel Colwell Scholarship. This tuition scholarship was established and is supported by Phi Upsilon Omicron, professional home economics organization. Alumnae and the active chapter cooperate in providing a tuition scholarship to an entering freshman women who proposes to major in home economics. Selection is on the candidate's high school record, including experience in such organizations as 4-H and F.H.A. It is in the amount of $100.

Continental Can Company, Inc., Forestry Scholarship. This scholarship, consisting of $1,000 for each of four years, is awarded to a freshman man enrolled in Forestry. The recipient must be a resident of a county in Virginia in which the Continental Can Company owns land. Selection of the recipient is made by the Company.

Danforth Leadership Training Scholarship for Agricultural Freshmen. One scholarship at the American Youth Foundation Leadership Training Camp, Stony Lake, Michigan, awarded by Ralston Purina Company to the most outstanding agricultural freshman at fifty state universities and one Canadian university, and the University of Puerto Rico. Covers the entire attendance cost of two weeks of outstanding leadership training at this camp located on Lake Michigan. One student only from West Virginia University.

Danforth Leadership Training Scholarship for Home Economics Freshmen. This scholarship is awarded to the most outstanding home economics freshman. It consists of full tuition for two weeks of leadership training at the American Youth

Foundation Camp, Stony Lake, Michigan. The scholarship is presented by the Ralston Purina Company. Slection of the recipient is made by the Student Aids and Grants Committee.

Esso 4-H Club Scholarship. One scholarship is available to a West Virginia 4-H club boy in the amount of $200 each year for four years beginning with the freshman year. The recipient must have satisfactorily completed at least three years of 4-H club work, including the year preceding selection; been graduated from high school with a scholastic standing in the upper half of his class; been selected upon a basis of need, merit, and ability; agreed to enroll at the beginning of the next fall term in some course related to agriculture at a state college of agriculture or university located in New Jersey, Delaware, West Virginia, Arkansas, North Carolina, South Carolina, Maryland, Virginia, Tennessee, Louisiana, Pennsylvania, New York, Connecticut, New Hampshire, Vermont, Maine, Massachusetts, or Rhode Island; and be a resident of the state in which the selection is made.

Gilbert Lumber Company Scholarship in Forestry. Established in the fall of 1956, this scholarship is for the study of forestry as preparation for work with the lumber industry, and carries an annual stipend of $900 for the school year subject to renewal for a total of four years on the basis of a satisfactory school record for the preceding years, and continued attendance by the recipient. Eligibility is restricted to residents of Mingo, Wayne, Lincoln, Logan, Boone, McDowell, Wyoming, Raleigh, Fayette, Mercer, and Summers counties. Applicants are required to be in the upper 10 per cent of their high school graduating classes, and must accept employment in the lumber industry during two summer vacations while studying at the University.

Harrison County Farm Bureau Agricultural Scholarship. Established in the fall of 1959. To be eligible as a recipient, the applicant must be a male student from Harrison County, who has completed high school with a creditable record and who has the additional qualifications of high character, abiding interest in agriculture, and financial need. Previous membership in 4-H and F.F.A., while desirable, are not required, nor is a farm background. This scholarship has an annual stipend of $100.

Kroger Company Scholarships. The Kroger Company will give one scholarship of $250 to a student in agriculture or forestry and one scholarship of $250 to a student in home economics. Awards are made on the basis of scholarship, and leadership in school, church, F.F.A., F.H.A., 4-H, and other youth activities.

Sears-Roebuck Foundation Agricultural Scholarships. A grant of $2,400 from the Sears-Roebuck Foundation makes possible the awarding of seven scholarships each year to deserving men enrolling as freshmen in agriculture or forestry, and to one sophomore in these fields. The scholarships are of $300 each.

Sears-Roebuck Home Economics Scholarships. A grant of $600 to the Division of Home Economics from the Sears-Roebuck Foundation makes possible the awarding of annual scholarships to two deserving women enrolling as freshmen in home economics. Individual scholarships amount to $300 per year.

Southern States Cooperative Scholarship. Established in 1957, this award is made annually to a freshman in agriculture or forestry, the son of a member or of a patron of Southern States Cooperative who produces agricultural products and a resident of West Virginia, who has two or more years' experience in 4-H or F.F.A. work. The grant is in the amount of $1,300, payable at the rate of $300 yearly for upperclassmen and $400 yearly for the freshman recipient.

Standard Oil Company of New Jersey Scholarship. In 1947 the Standard Oil Company of New Jersey provided a four-year scholarship of $200 per year to a man in 4-H Club work in West Virginia. Selection is on the basis of need and ability.

West Virginia Dairy Technology Society Scholarship. The West Virginia Dairy Technology Society has established a scholarship of $400 to be awarded to an entering freshman who intends to major in dairy manufacturing. The recipient is selected by the Committee on Student Aid and Grants of the College of Agriculture, Forestry, and Home Economics on the basis of high school achievement, aptitude, and need.

West Virginia Home Demonstration Council Scholarships. These scholarships of $200 are available to three freshman women in the Division of Home Economics. It is hoped that a good proportion of the recipients will eventually give service to West Virginia by becoming 4-H club agents or home demonstration agents. Recipients must be West Virginia residents.

For Students in the College of Arts and Sciences

Alpha Chapter of Phi Epsilon Phi Botany Scholarship. This scholarship was established in 1961 by the Alpha Chapter of Phi Epsilon Phi, honorary botany fraternity, to be awarded to a high school senior who has shown interest in making a study of botany. This scholarship will pay University fees for one semester. Each high school principal may nominate one student from his school. Nominations must be received by the fraternity by April 6. The award recipient will be announced at the University's annual Wild Flower Day program.

Columbia Southern Chemical Corporation Scholarship. This award is in the amount of $4,000. It was established for graduates of Magnolia High School (New Martinsville) or for employees of the Columbia Southern Chemical Corporation plant who graduated from any high school. The recipient must be a candidate for work in chemistry, chemical engineering, mechanical engineering, civil engineering, or electrical engineering. The recipient will be selected by the corporation.

Science Talent Search Scholarship. The Board of Governors of the University and the West Virginia Academy of Science in 1949 established this scholarship which entitles a high school senior to the remission of all fees except those payable to State special funds and those chargeable to special services, as well as a cash award of an amount not less than the total remitted by the University. The recipient is selected by the Academy of Science in accordance with its rules.

Sigma Pi Sigma Scholarship in Physics. Established in 1956 by the local chapter of Sigma Pi Sigma, national physics honorary, this scholarship is awarded annually to a West Virginia high school senior chosen on the basis of tests and academic record, and on the recommendation of his high school principal and science teacher. In order to obtain the scholarship, which pays $150 per year, the recipient must enroll in the University with the intention of majoring in physics.

For Students in the School of Dentistry

General Daniel Morgan Scholarship. In the fall of 1959, on behalf of the Veterans of Foreign Wars of the United States, General Daniel Morgan Post No. 548, Morgantown, established a scholarship for an entering freshman. This scholarship will be given to a resident of Monongalia County who is a student in either the School of Dentistry or the School of Medicine. It has an annual stipend of $400. The student will be selected by the V.F.W. Scholarship Committee on the basis of eligibility and need. Dr. Donald E. Hayhurst, political science, is chairman of the committee.

For Students in the College of Education

Board of Governors Scholarships in Education. In 1954 the Board of Governors established five annual scholarships in education. Each includes four academic years and entitles the recipient to the remission of all fees except those payable to State special funds and those chargeable to special services. Scholarships are awarded to graduating high school seniors who have a desire to become good public school teachers on the basis of scholastic ability and attainment, qualities of good citizenship, evidence of leadership and moral force, and extracurricular activities. Scholarship holders will register during their first two years in the pre-Education curriculum of the College of Arts and Sciences.

For Students in the College of Engineering

Armco Foundation Scholarship in Civil Engineering. This award of $650 yearly will be continued for four years provided the recipient maintains satisfactory standards.

Associated General Contractors of West Virginia Scholarship. Established in 1956, this scholarship has a stipend of $300 for a freshman in the College of Engineering. Scholars are chosen from applicants on the basis of scholarship, with an aptitude for college and engineering study, and interest in engineering and construction.

Columbia Southern Chemical Corporation Scholarship. This award is in the amount of $4,000. It was established for graduates of Magnolia High School (New Martinsville) or for employees of the Columbia Southern Chemical Corporation plant who graduated from any high school. The recipient must be a candidate for work in chemistry, chemical engineering, mechanical engineering, civil engineering, or electrical engineering. The recipient will be selected by the corporation.

The Dow Chemical Company Scholarship. Established in 1963. In recognition of the quality of the Department of Chemical Engineering, the Dow Chemical Company has established a four-year scholarship in chemical engineering at $500 per year for a total of $2,000, with summer employment following the junior or senior year at the option of the recipient. This scholarship will be awarded also for the 1964-65 academic year. Selection is made by the Department of Chemical Engineering.

International Nickel Company Scholarship. Established in 1956, this award is for a high school graduate interested in engineering (with a preference for the mining, geological, or metallurgical fields). It is for four years, and consists of tuition, fees, and a cash sum of $300 annually for books and a portion of the living expenses.

Pocahontas Fuel Company, Incorporated, Scholarships. In 1956 the Pocahontas Fuel Company, Incorporated, established two undergraduate scholarships, one that started in 1956 and the other that began in 1959. The annual amount of each—$700 for West Virginia students or $1,000 for out-of-state students—is renewable from year to year on the basis of satisfactory scholastic and personal records. These scholarships are for the purpose of studying coal engineering in the College of Engineering.

Union Carbide Engineering Scholarship. This scholarship is to be awarded to an entering freshman. It is for four years at $500 per year. Preference will be given to students entering the mechanical, chemical, or metallurgical engineering field.

Western Electric Fund Scholarship. Established in June, 1963. This scholarship is to be given to a junior or senior student in electrical engineering or a first- or second-year student who will major in electrical engineering. It holds an annual stipend of $800 or the cost of tuition, fees, and books, whichever is lower, but not less than $400. Selections shall be made by the department on the basis of need and ability. Applicants must be United States citizens.

For Students in the School of Journalism

All scholarships in the School of Journalism are given on the basis of ability, scholastic achievement, promise for a succesful career in one of the many fields of communications media, and need of financial assistance.

Lewis Baker Scholarships. Two scholarships of $100 each were established in 1945 by the late Mrs. Guy Despard Goff in memory of her father, Lewis Baker (1832-99), who founded the Wheeling Register in 1863. Between 1955 and 1957 these two scholarships were maintained jointly by the late Mrs. Ruth B. Thomas, also a daughter of Lewis Baker, and her son, L. N. Thomas. Following the death of Mrs. Thomas, the two scholarships have been maintained by Mr. Thomas, president of the Carbon Fuel Company, Charleston.

Board of Governors Scholarships in Journalism. In 1961 the Board of Governors established three annual scholarships in journalism. Each includes four academic years and entitles the recipient to the remission of all fees except those payable to State special funds and those chargeable to special services. Recipients are selected according to results of a high school writing contest conducted at the University in the spring. All West Virginia high school seniors who give promise of becoming eligible for regular enrollment in the School of Journalism are eligible to participate in the contest.

Charleston Daily Mail-Gazette Scholarships Two Daily Mail scholarships of $100 each were established in 1945 by its editor the late Walter E. Clark, and its publisher, Fred M. Staunton. From 1945 to 1957 the Mail provided either one or two scholarships each year. In 1958 the scholarships were given by the Newspaper Agency Corporation as agent for both the Charleston Daily Mail and Charleston Gazette. Awards of $100 each will be granted to two students receiving these scholarships.

Morgantown Typographical Union Scholarship. This scholarship is in the amount of $250 yearly and was established by the Morgantown Typographical Union in 1961. First preference will be given to applicants who may be relatives of members of the sponsoring local union; second preference, to relatives of members of other I.T.U. locals; and third preference, to residents of the State. The usual factors of need and academic ability also will be given their customary weight.

Ogden Scholarships. In 1945 the News Publishing Company, Wheeling, established two $200 scholarships in memory of the late H. C. Ogden, West Virginia publisher.

West Virginia Broadcasters Association Scholarship. Established in 1962 by the West Virginia Broadcasters Association, this scholarship holds an annual stipend of $100. It can be awarded to a different student each fall to supplement the first year of the Board of Governors' Scholarship for broadcast journalism, or it can be awarded to one student for four years. This is decided by the Scholarship Committee of the School of Journalism.

For Students in the School of Medicine

General Daniel Morgan Scholarship. In the fall of 1959, on behalf of the Veterans of Foreign Wars of the United States, the General Daniel Morgan Post No. 548, Morgantown, established a scholarship for an entering freshman. The scholarship will be given to a resident of Monongalia County, who is a student in either the School of Medicine or the School of Dentistry. It has an annual stipend of $400. The student will be selected by the V.F.W. Scholarship Committee on the basis of eligibility and need. Dr. Donald E. Hayhurst, political science, is the chairman of the committee.

Scholarship Fund in Honor of Dr. Thomas L. Harris. Established by the family of Anna M. Broida of Parkersburg, this annual scholarship of $400 will be awarded each year to a worthy student in the School of Medicine. A preference will be given to a student who is specializing in surgery. This scholarship may be held for more than one year depending upon the committee's decision.

The West Virginia Medical Association Scholarship in Medicine. Established by the West Virginia State Medical Association in 1958. The recipient receives a stipend of $1,000 a year for four years of medical training. Recipients are selected by the Committee of the Student Medical Association on recommendation by the Committee on Admissions of the School of Medicine. The recipient must agree to practice medicine in a rural West Virginia community for four years after his graduation with an M.D. degree.

For Students in the School of Mines

Carbon Fuel Foundation, Inc. Scholarship. A scholarship for the study of Mining Engineering offered by the Carbon Fuel Foundation, Inc. This scholarship carries an annual stipend of $600 for an outstanding high school graduate, and is subject to renewal for a total of four years on the basis of satisfactory school record for the preceding year and continued attendance by the recipient. The scholar must be a resident of West Virginia, and shall intend to accept employment in the coal mining industry following completion of the prescribed course in mining engineering.

Coal Division, American Institute of Mining, Metallurgical, and Petroleum Engineers Scholarship. This scholarship was established for outstanding students in the School of Mines. This scholarship is valued at $400 per year, and may be awarded for a period of four years. Awards are made by the Scholarship Committee of the American Institute of Mining, Metallurgical, and Petroleum Engineers. Inquiries should be addressed to the Dean of the School of Mines.

Frank Ellis Christopher Coal Mining Engineering Scholarship. Established in January 1961, by Mrs. Virginia Christopher Farland in honor of her father, Frank Ellis Christopher. Preference shall be given to male resident applicants for the study of mining engineering. It shall be awarded on the basis of ability, performance, character, and need. The annual stipend is $800.

The Johnstown Coal and Coke Company Scholarship. The Johnstown Coal and Coke Company, of Johnstown, Pennsylvania, offers an annual freshman scholar-

ship in mining engineering for which graduates from high schools in the vicinity of the company's West Virginia and Pennsylvania operations are eligible to compete. The scholarship provides payment of $750 per year, renewable annually for four years on the basis of satisfactory academic performance. Awards are made by the sponsoring company, and the participating high schools in West Virginia are Cowen, Crichton, Nicholas County, Richwood, and Webster Springs.

North American Coal Corporation Scholarship. This grant-in-aid program was established by the Cleveland firm of the same name, and is available to freshmen enrolling in the School of Mines. There is no fixed number of awards, and recipients are selected by the corporation. Grants range up to $900 yearly, and are renewable from year to year on a satisfactory performance basis.

Pocahontas Fuel Company, Incorporated, Scholarships. In September, 1956, the Pocahontas Fuel Company, Incorporated, established two undegraduate scholarships, one that began in September, 1956, and the other that began in September, 1958. The scholarship carries an annual stipend of $700 for West Virgina residents and $1,000 for out-of-state students and is awarded to an outstanding high school graduate who is a citizen of the United States, subject to renewal for a total of four years on the basis of satisfactory scholastic and personal record. The recipient should have a basic interest in coal mining and the course of study should be applicable to that industry.

The Semet-Solvay Scholarships. The Semet-Solvay Division, Allied Chemical Corporation, Bluefield, West Virginia, established in March, 1952, the Semet-Solvay Scholarship in Mining Engineering. This scholarship is awarded to an outstanding high school graduate who is a resident of West Virginia and who will pursue a course in coal mining engineering and will accept employment in the coal mining industry upon graduation. This scholarship pays $600 per year, and is renewable from year to year upon the basis of satisfactory academic work during the previous year. Inquiries should be sent to the Dean of the School of Mines.

Texaco Scholarships. In the fall of 1963 Texaco, Incorporated, established a scholarship fund from which two scholarships in the amount of $675 each are awarded annually to junior and senior male students enrolled in a curriculum qualifying them for a scientific or engineering career in petroleum industry. Bases of the selections are scholastic ability, demonstrated qualities of leadership, financial need, good health, and physical fitness. Applicants must be United States citizens.

For Students in the School of Music

Board of Governors Scholarships in Music. Ten Board of Governors scholarships in music are available each year for entering freshmen. These scholarships are open to performers on any band or orchestral instrument, as well as to organists, pianists, singers, composers, and theorists. The recipient is entitled to remission of all fees except those payable to State special funds and those chargeable to special services.

The winner of each scholarship must be a graduate of an accredited high school, and will enroll in the School of Music in the fall following the awarding of the scholarship, as a candidate for a degree in music.

Each scholarship will include four academic years, provided that the recipient maintains a scholarship record deemed by the Scholarship Committee of the School of Music to be worthy of continuance of the scholarship.

Auditions are in Morgantown on announced dates.

Winners are selected on the basis of musical ability, scholastic record, and personality. For further information address the Dean of the School of Music.

The Woman's Music Club of Morgantown Scholarship. The Woman's Music Club of Morgantown has established an annual scholarship for a qualified music student from West Virginia with preference, when possible, being given to a resident of Monongalia County. The scholarship has a value of $115 per semester.

For Students in the School of Physical and Health Education, Recreation, and Safety

Grace M. Griffin Scholarship. The Grace M. Griffin Scholarship provides $240 (tuition) for a freshman woman student majoring in physical education. The recipient will be selected by the faculty of the Department of Physical Education for Women.

Recreation Society Scholarship. The West Virginia Recreation Society has established a scholarship for freshmen. Inquiries regarding this scholarship should be directed to the Recreation Department, School of Physical and Health Education, Recreation, and Safety, West Virginia University, or to the Coordinator of Scholarships, 303 Administration Building, West Virginia University.

Ira Errett Rodgers Scholarship. Established in 1963. This scholarship will provide $240 annually for a freshman majoring in physical education, who will be selected by the faculty of the Department of Physical Education for Men.

For Students in Any College or School of the University

Victor E. Albright Scholarship. This scholarship is awarded to a man or woman of good character, born and reared in Preston County and graduated from a Preston County high school in the year in which the scholarship is given.

Anonymous Scholarships. In 1956 an anonymous bequest was established for a scholarship fund to be used by worthy West Virginia students. Scholarships will be awarded from time to time to prospective and/or enrolled students on the basis of high school record and character. Scholarships will be for any chosen field of study and awarded from year to year, and renewed only when scholars have shown satisfactory progress. The single exception to these qualifications is that descendants of the testator shall be given first consideration regardless of his or her place of residence. The number benefiting from this grant will vary to as many as six or more.

Claude Worthington Benedum Scholarships. These scholarships will be awarded to worthy West Virginia high school graduates, selected on the basis of a statewide competitive examination, need, and other qualifications. The average amount is $250 per year, although this may vary according to need.

Board of Governors Achievement Scholarship. In 1945 the Board of Governors authorized the establishment of 25 scholarships to be awarded annually to high school graduates. The scholarships entitle recipients to the remission of all fees except those payable to State special funds and those chargeable to special services.

D. C. Alumni Chapter Scholarship Fund. Established in 1962 to provide an annual $500 award to the son or daughter of an alumnus or alumna living in the Washington metropolitan area. The award shall be made on the basis of citizenship, leadership, scholarship, and need. It shall be awarded on a one-year basis, with possible renewal for an additional year or years. Nominations will be solicited from members of the D. C. Chapter, other University alumni, high school principals, and/or other interested persons.

Father Flynn Memorial Scholarship. This scholarship is awarded to an outstanding student of the graduating class of St. Francis High School, Morgantown, in memory of Father Peter Flynn, for 50 years a Catholic priest and for many years a leading Morgantown citizen. It includes tuition and fees, and will be awarded by the Principal of St. Francis High School.

General Motors Scholarships. The General Motors Corporation in 1955 established a program of merit scholarships in the University. The first two were awarded to outstanding West Virginia high school graduates in the fall of 1955. They are granted for four years, so that by the fall of 1958 eight were in operation. Winners are selected on the basis of high scholarship, character, and potential for college study.

Harrison County Alumni Chapter Scholarship. This scholarship, established in 1950, provides tuition fees for an outstanding Harrison County high school graduate. Selection is made by the chapter.

Helvetia Scholarship. In 1956, Helvetia, sophomore men's honorary, established an annual award of $100 to be applied to tuition for a recipient chosen from the "Ten Top Freshmen" on the basis of financial need.

Leyenberger Scholarship Fund. This scholarship was established in 1956 in the memory of a Wheeling Presbyterian minister and his wife. The invested earnings of the original gift of $1,000 (established in the West Virginia University Foundation) are set aside for an annual scholarship grant to a worthy and outstanding student enrolled in the University. The exact value of the grant will vary, and the stipend is awarded on a year-to-year basis.

Loyalty Permanent Endowment Fund of the W.V.U. Alumni Association. This fund, an irrevocable trust with earnings pledged to University purposes, including scholarships, was established by the Alumni Association in 1937. Its principal is derived from contributions by alumni and other friends of the University; and it is administered by a self-perpetuating trust committee composed of three alumni, with the Kanawha Valley Bank of Charleston serving as trustee. During each academic year, this fund supports several University scholarships, all outright gifts of cash to deserving students with no obligation to repay other than a moral one at such time as the receipient feels he is financially able to contribute. An average of about eight students are aided by the program yearly.

Morgantown Woman's Club Freshman Scholarship. This scholarship was established in 1961 for the aid of a graduating senior from a Monongalia County high school to help with tuition and fees expenses for one year. The student will be selected from among all Monongalia County high schools each Spring by the Morgantown Woman's Club.

Olin Mathieson Employees Scholarship. The employees of Olin Mathieson Chemical Corporation (Morgantown Plant) have established a scholarship fund in West Virginia University for the purpose of giving aid and encouragement to children and/or grandchildren of former employees of the Corporation's Morgantown Operation wherever they may now reside, to secure college training in any chosen field of study. The value of this scholarship is $200, and the recipient may continue to receive such grants from year to year for four years if academic and character standards of the University are met. (It is planned to expand this to a double scholarship, providing equal amounts for each of two individuals). The recipient will be chosen by the University, and selection of the applicant will be made on the basis of: (1) ability to do college work, (2) character and personality, and (3) need for financial assistance to attend college. Candidates from any undergraduate class rank may be considered. In case no candidates are available from families of employees for a period of three consecutive years, the University is free to select other worthy recipients who may qualify under these conditions.

John Barton Payne Scholarships. A bequest from the late John Barton Payne, Taylor County native and former president of the American Red Cross (who lived in Kingwood and practiced law in Preston County). gave the University a sum of $12,000, income from which is to be used to aid two young men—one a native of Taylor County and the other a native of Preston County—to attend the University. Financial needs and scholastic merit are prime considerations in selecting recipients for this four-year scholarship.

The Deem Rahall Memorial Scholarship. The Rahall family of Beckley established in 1951 a freshman scholarship in the University in memory of Deem Rahall. The scholarship is for an outstanding and worthy graduating senior in Woodrow Wilson High School who desires to attend the University. The annual stipend, awarded for the freshman year only, amounts to $250.

Myrtle Mae Sloan Scholarship. This scholarship was established in 1955 by Miss Viva O. Sloan of Morgantown in memory of her sister. The invested earnings of the original gift of $5,000 (established in the West Virginia University Foundation) are set aside for an annual scholarship grant to a worthy and outstanding student. The exact value will vary, and the stipend is awarded on a year-to-year basis.

Speech Scholarships. Eight speech scholarships are awarded annually to West Virginia high school seniors who participate in the State finals of the West Virginia Interscholastic Forensic League and the State High School Drama Festival. These scholarships are good and usable in any college, school, or division of the University, although the recipient is required to participate each semester in speech activities or enroll in speech classes. A board of judges composed of staff members of the Department of Speech selects the eight outstanding seniors participating in the tournament as recipients of these scholarships, which carry remission of all fees, except those payable to the State special funds and those chargeable to special services, and are good for four years. For information regarding participation in the annual tournament, write to the Department of Speech, early in the scholastic year.

Spencer Manufacturing Company Scholarship. This scholarship was established in 1959 by the Spencer Manufacturing Company. The company will pay $100 to the Roane County W.V.U. Alumni Association, for a scholarship to be awarded to a graduate or graduates of a Roane County high school or to an applicant

whose legal residence has been in Roane County for at least five years prior to the date of application. The applicant must have been in the upper 15 per cent of his class scholastically, his school citizenship must have been exemplary, he must have participated in extracurricular school activities, and he must show definite need of financial assistance. Interested seniors should contact their high school principals before June 1 of each year.

George E. Stifel Scholarship. Several years ago there was established in Wheeling a trust fund known as the George E. Stifel Scholarship Fund, the object of which is to help deserving graduates of the public schools of Wheeling to obtain college educations. As many as four University students have received aid from this fund simultaneously.

Wood County 4-H Scholarships Fund. This fund was established in trust by Mrs. Minnie E. Barnett and is to be used for tuition and fee scholarship benefits for first- or second-year students in the University or a Branch College of the University. Recipients should be Wood County residents who are or have been affiliated with the Wood County 4-H Program. A 2.3 or better average is required at all times. Students wishing to apply should contact the Wood County Agricultural Agent, who is the temporary chairman of the selection committee for this scholarship. This fund became effective in the 1963-64 academic year.

For Foreign Students

R. A. Farland Scholarship for Latin American Students. This scholarship was established in 1960 by Joseph Farland, Morgantown, in memory of his father—Richard Ashville Farland. The recipient, a Latin American student, may hold the grant for more than one year, so long as he or she lives up to normal academic and conduct standards of the University. The annual stipend is $800.

Parkersburg Branch Scholarships

The following scholarships are available to residents of Wood or contiguous counties of West Virginia and Ohio, and are to be administered by the University Scholarship Coordinator in consultation with the Director of the Parkersburg Branch of West Virginia University.

Lewis Batten Memorial Scholarship. This scholarship was established in 1962 by Wood County Bank and is for a full-time freshman student. It holds an annual stipend of $750. The prime consideration for this scholarship is demonstrated financial need. Other factors that will be considered are previous academic performance, leadership potential, potential promise as a scholar and development as an individual.

William M. Parker, Jr. Memorial Scholarship. This scholarship was established in 1962 by Wood County Bank and is to be given to a full-time student who has completed at least fifteen hours of work. It holds an annual stipend of $750. The prime consideration for this scholarship is demonstrated financial need. Other factors that will be considered are previous academic performance, leadership potential, potential promise as a scholar, and development as an individual.

Wood County Bank Scholarship. Established in 1962 by Wood County Bank. There will be two scholarships granted annually, each holding a stipend of $250 to be awarded to full or part-time students, one a freshman and one a second-year student. In awarding these scholarships, more emphasis will be given to previous academic performance than financial need. Other factors being considered are leadership potential, potential promise as a scholar, and development as an individual.

Wood County 4-H Scholarships Fund. For details concerning this fund, see above.

Upperclass Scholarships

For Students in the College of Agriculture, Forestry, and Home Economics

Andrew Delmar Hopkins Scholarship in Entomology. This scholarship, established in 1954, is in memory of an internationally known entomologist, for many years director of the West Virginia University Agricultural Experiment Station.

It is for $200 per year and is awarded to a worthy senior or graduate student with an interest in entomology, who has demonstrated originality and research ability.

KDKA Agricultural Scholarship. This scholarship is in the amount of $100 yearly, and is made to a junior or senior in agriculture to recognize outstanding leadership, to encourage the use of radio in disseminating agricultural information, and to help train students in broadcasting techniques. It is sponsored by Radio Station KDKA, Pittsburgh.

Ralston Purina Company Scholarship. This scholarship in the amount of $500 is awarded annually in each of fifty land-grant colleges and state universities, one in Puerto Rico, and three in Canada to an incoming senior in the College of Agriculture by Ralston Purina Company. Qualifications are based on leadership, character, extracurricular, sincerity of purpose, financial need, and scholarship.

Sears-Roebuck Foundation Agricultural Scholarships. A grant of $2,400 from the Sears-Roebuck Foundation makes possible the awarding of seven scholarships each year to deserving men enrolling as freshmen in agriculture or forestry, and to one sophomore in these fields. The scholarships are of $300 each.

Southern States Cooperative Scholarship. Established in 1957, this award is made annually to a freshman in agriculture or forestry, the son of a member or of a patron of Southern States Cooperative who produces agricultural products and a resident of West Virginia, who has two or more years' experience in 4-H or F.F.A. work. The grant is in the amount of $1,300, payable at the rate of $300 yearly for upperclassmen and $400 yearly for the freshman recipient.

Vandalia Agricultural Scholarships. Five scholarships, established by an anonymous gift, may be awarded to students in the agricultural sciences who have demonstrated ability and have need of financial assistance. Each scholarship provides $300 for each academic semester or a total of $600 each year. Each scholarship may be held for a maximum of eight semesters.

West Virginia Home Economics Alumnae Scholarship. A $100 scholarship is awarded annually to the student in home economics with the highest scholastic average at the end of her freshman year.

For Students in the College of Arts and Sciences

American Viscose Corporation Scholarship. The American Viscose Corporation of Marcus Hook, Pa., established in 1953 an undergraduate scholarship for a junior or senior majoring in chemistry or chemical engineering. The annual value of the scholarship is $500, and the scholarship alternates between students in the College of Arts and Sciences and the College of Engineering.

Board of Governors Scholarships in Social Work. In 1961 the Board of Governors reduced the number of scholarships in the field of social work to two. These are for undergraduate students with preferences for West Virginia residents. Each entitles the recipient to the remission of all fees except those payable to State special funds and those chargeable to special services.

Edna Nestor Condry Scholarship in Art. This scholarship was established in July, 1961 in memory of Mrs. Edna Nestor Condry by her husband, Dr. R. J. Condry, who is now a member of the clinical staff of the School of Medicine. The award holds an annual stipend of $250. The recipient will be chosen by University scholarship officials in consultation with the Chairman of the Department of Art. Preference is to be given residents of West Virginia with need and talent.

R. M. Davis Scholarship in Political Science. R. M. Davis, late Morgantown coal operator, gave the University the sum of $5,000 to establish a scholarship in the Department of Political Science. The scholarship, with an average value annually of between $300 and $500, is granted to an undergaduate or graduate student whose specialty is international relations. Scholastic standing and qualities of leadership will be given primary consideration.

Charles B. Jolliffe Scholarship. The Radio Corporation of America in 1952 established the Charles B. Jolliffe Scholarship to honor the director of R.C.A. who is an alumnus of the University. The scholarship, valued at $800 per year, is awarded to an outstanding undergraduate student who has elected to major in chemistry, mathematics, or physics.

The John A. Moore Scholarship Fund in Memory of John Craig Moore. This scholarship fund was established in 1962 by the will of John A. Moore. The number

and amounts of scholarships granted depend on income from invested funds. Scholarships will be awarded to male students in chemistry, who are residents of West Virginia, of good character and sound health, and those who would not otherwise be able to receive a University education. Students are to be selected on their merits, those having special promise of ultimate accomplishment to be given preference.

Morgantown Community Players' Scholarships. These scholarships (generally four in number) were established in 1955. They are for University students participating in Department of Speech activities and/or courses with the following selection priorities: (1) a citizen of the Morgantown area; (2) a citizen of the State of West Virginia; (3) a nonresident student. The students shall be chosen on the basis of talent, industry, and academic achievement during their freshmen and sophomore years. Their names are then approved by the Morgantown Community Players. The scholarships are paid during the recipients' junior and senior years in the sum of $100 during each of the two years.

The Morgantown Service League Scholarship. This scholarship provides $200 a year for a full-time student in the Department of Social Work. The recipient must be a resident of West Virginia, and must be approved by the Chairman of the Department of Social Work.

The West Virginia Federation of Women's Clubs Scholarship in Social Work. This scholarship provides $150 a year and is awarded to a full-time student in the Department of Social Work. The recipient, selected by the Chairman of the Department, must be a resident of West Virginia.

For Students in the College of Commerce

West Virginia Consumers Finance Association Scholarship. This association established in 1946 an annual scholarship of $150. This scholarship is for the aid of an outstanding and needy University student who is a resident of West Virginia. In 1953 the association specifically designated this scholarship for the use of an outstanding student in the College of Commerce. Recipients are chosen on the basis of character, academic achievement, and general campus activities.

The West Virginia Banking Association Award. Established in 1961 by the West Virginia Banking Association, this scholarship is awarded to a University student majoring in economics. The award holds a stipend of $700 per year.

For Students in the College of Engineering

American Viscose Corporation Scholarship. The American Viscose Corporation of Marcus Hook, Pa., in 1953 established an undergraduate scholarship for a junior or senior majoring in chemical engineering or chemistry. The annual value of the scholarship is $500, and it alternates between students in the College of Engineering and the College of Arts and Sciences.

Machinery, Inc., Engineering Scholarship. This scholarship is to be awarded to a worthy senior student of good moral character, a resident of West Virginia, who expects to pursue the field of engineering upon graduation. The amount is $400.

The Friends of The Pennsylvania Electric Coil Corporation Scholarship. This scholarship was established in 1959 by the Pennsylvania Electric Coil Corporation. It is to be awarded to a junior or senior student in engineering with a preference being given to the electrical field. Selection is made on the basis of need, potential achievement, and character. The recipient shall be willing to provide a picture and some facts concerning his background and ambitions. This scholarship is for one year and may or may not be renewed by the donor from year to year.

West Virginia Society of Professional Engineers Scholarship. This scholarship is sponsored by the Woman's Auxiliary of the Charleston Chapter of the West Virginia Society of Professional Engineers, Charleston. The recipient must be an upperclass woman in the College of Engineering. She must have a financial need and she must preferably be from Kanawha County, but in any event, a resident of West Virginia. She must have above a 2.000 grade-point average. This scholarship has a cash value of $100 per year.

For Students in the School of Journalism

All scholarships in the School of Journalism are given on the basis of ability, scholastic achievement, and promise for a successful career in one of the many fields of communications media, and need of financial assistance.

Charleston Press Club Scholarships. The Charleston Press Club in 1951 established an annual grant of $200 for sophomores, juniors, or seniors in journalism. This amount is generally awarded in the amount of $100 each to two recipients.

Journaliers' Tuition Scholarship. This scholarship, consisting of $115, was begun in 1958 and is awarded the first semester of each year to a worthy and deserving upperclassman in journalism. The sponsor is Journaliers', men's journalism honorary.

For Students in the School of Medicine

Claude Worthington Benedum Foundation Medical Scholarship. A fund of $1,200 yearly has been granted by the foundation for the aid of medical students with satisfactory academic records who need financial help to complete a given year's course of study. There is no set number.

Joseph Collins Foundation Scholarships. Established in 1951 under a bequest of the late Dr. Collins, physician and pioneer neurologist, these scholarships provide financial support in varying amounts for needy and deserving students. Recipients are determined on the basis of scholarship, interest in arts or letters or other cultural pursuits outside the field of medicine, and on the intention of entering neurology or psychiatry as specialists or of being general practitioners. Recipients also must show a need for financial aid. There is no set number.

For Students in the School of Mines

The Central Appalachian Section of the American Institute of Mining, Metallurgical and Petroleum Engineers has awarded three scholarships to male students in Kentucky, West Virginia, and Virginia. These students are eligible to attend any school teaching mining engineering in the area.

The Eastern District of the American Petroleum Institute Scholarship in Petroleum Engineering. This scholarship was established in 1959 by The Eastern District of the American Petroleum Institute. The amount of this scholarship is $500 for one year, and is awarded annually to a University in the Eastern District Area which includes the states of West Virginia, Pennsylvania, Ohio, Kentucky, New York, Virginia, Indiana, and Illinois. It was awarded to West Virginia in 1960. The Scholarship Committee of the Institute will notify the University if a scholarship is to be granted in a given academic year, and will then choose a recipient from recommendations by the faculty of the School of Mines.

Armco Foundation Scholarship. The Armco Foundation of the Armco Steel Company, Middletown, Ohio, established in May of 1954, two scholarships in the field of mining engineering. Each grant provides $250 per academic year. One is awarded to a junior student and the other to a senior student in the School of Mines. Selection of recipients is made on the basis of academic record, character, and personal leadership qualities.

Lorado Coal Mining Company Scholarships. The Lorado Coal Mining Company, beginning in the fall of 1954, provided scholarship grants of $500 each per academic year to two students in the field of mining engineering. Selection of the recipients is made by the Lorado Coal Mining Company with the approval of the Dean of the School of Mines.

Magnolia Petroleum Company Scholarship. This scholarship, in the amount of $400 per year plus fees (not to exceed a total of $500), is awarded to a worthy senior in the petroleum and geological engineering option of mining engineering. It is not available every year, however, for the University shares it with two other institutions.

Socony-Mobil Scholarship in Petroleum Engineering. This is essentially an award to a senior student in petroleum engineering. It consists of $500 plus fees and tuition, and is based on the candidate's interest in the production side of the petroleum industry, and in his career potential.

The G. Ralph Spindler Scholarship Fund. This scholarship fund for varying types of aid to students in mining engineering was established in February, 1961 in memory of the late Dean of the School of Mines.

Clarence Wayland Watson Memorial Scholarship. In the winter of 1955 the University received an anonymous gift for the establishment of the Clarence Wayland Watson Memorial Scholarship. Scholarship aid in varying amounts from this fund will be awarded from time to time to an outstanding and worthy graduate or undergraduate who will pursue some branch of study in coal development or coal research.

The Youngstown Steel and Tube Company Scholarship in Mining Engineering. (1) This scholarship will be awarded annually to a junior regularly enrolled in the School of Mines in mining engineering; (2) a student who is enrolled in some other division of engineering, but who has completed the essential requirements of the first two years from mining engineering and who is transferred to the mining department; and (3) a student who is transferred to the School of Mines from another accredited college and who has completed college work equivalent to the first two years of mining engineering at West Virginia University. The selection of the recipient will be on the basis of recommendations of the faculty of the School of Mines, subject to final approval of the sponsoring company. The student will be continued on the scholarship for his senior year on the basis of satisfactory academic performance and recommendation of the faculty of the School of Mines. The scholarship shall provide a direct payment of $200 a semester.

For Students in the School of Music

Band and Orchestra Participation Scholarships. These grants are awarded to those members of the band and orchestra, both graduate and undergraduate full-time students, who are especially well qualified, and who, after two years' service are invited to remain as members of these organizations. Recipients receive allowance in the form of a $30.00 remission of fees per semester. There is no specific number.

Mrs. Russell Mac Murphy Chase Scholarship in Piano. The School of Music was named in the will of the late Mrs. Russell Mac Murphy Chase, the University's first piano teacher, as the recipient of the sum of $1,500, the income of which is to be used for scholarships in the piano department.

Presser Foundation Scholarship. This scholarship, established in 1952 by the Presser Foundation of Philadelphia, provides an annual grant of $400 for the aid of a student in the School of Music of good character and satisfactory standing, who may not carry on his studies without financial help provided by the foundation. Preference is given those who expect to become teachers.

University Band Drum Major Scholarship. The Board of Governors in 1953 established a drum major scholarship to be awarded annually. It entitles the recipient to remission of all fees, except those payable to State special funds and those chargeable to special services.

For Students in the School of Nursing

C. Jeanette Oswald Fund Scholarship. The principal sum is invested, the income of which is to be used to aid students who are registered nurses and wish to continue their work toward a degree in nursing.

Mary Jane Parry Scholarship. The estate of Mary Jane Parry, who for many years was a prominent nurse in Charleston, provides an annual scholarship of $250 to a student in the School of Nursing. Selection of the recipient is based on need and scholastic ability.

Patrons' Scholarships. Grants of $50.00 to $100 per semester are available from private unrestricted contributions to the School of Nursing. These are awarded on the basis of need.

West Virginia Nurses Association Scholarship. Contributions from 10 districts of the West Virginia Nurses Association provide a nursing scholarship of $250 annually to be awarded to a student who shows outstanding promise of nursing leadership and who has need of financial assistance.

For Students in the School of Pharmacy

The American Foundation for Pharmaceutical Education. To encourage academic achievement the Foundation provides scholarships of $200 for required college expenses. Selection is made by the School of Pharmacy from students in the top quarter of each class who maintain a "B" or higher average. Recipients are identified as "Scholars of the American Foundation for Pharmaceutical Education." Application must be made to the Dean's office before July 1 each year.

Clarksburg Drug Company Scholarship. The Clarksburg Drug Company provides a tuition scholarship each year for a student needing financial assistance. Application must be made to the Dean's office before July 1 each year.

Cohen Drug Company Scholarship. The Cohen Drug Company of Charleston awards each year a tuition scholarship to a student needing financial assistance and who intends to practice in community pharmacy in West Virginia after graduation. Application must be made to the Dean's office before July 1 each year.

Loyalty Permanent Endowment Fund Scholarship. In 1959 the West Virginia State Pharmaceutical Association made a contribution of $5,000 to the Loyalty Permanent Endowment Fund to provide a scholarship for a pharmacy student in need, academic ability, moral character, and extracurricular activities. Amounts may be made to the Dean's office before July 1 each year.

Ohio Valley Pharmacy Scholarship. The Ohio Valley Drug Company of Wheeling provides a tuition scholarship each year for a student needing financial assistance. Application must be made to the Dean's office before July 1 each year.

The Pepsodent Presidential Scholarship. This scholarship, consisting of $100 a year for five years, is awarded annually to a person desiring to study the profession of pharmacy. The recipient of this scholarship is selected by the President of the West Virginia State Pharmaceutical Association. Further information may be obtained from William J. Dixon, Secretary, West Virginia State Pharmaceutical Association, Oak Hill, W. Va.

For Students in the School of Physical and Health Education, Recreation, and Safety

The Dr. W. Merle Warman Scholarship. This scholarship was established in 1961 by Dr. W. Merle Warman of Morgantown. It provides $400 to a student who has been accepted for enrollment in a school or department of physical therapy. The recipient will be selected by the faculty of the School of Physical and Health Education, Recreation, and Safety. The scholarship is given to encourage physical education students to continue their education in physical therapy.

For Students in Any College or School of the University

Dean Edna Arnold Memorial Scholarship. Associated Women Students established in the spring of 1956 a scholarship in memory of the late Edna Arnold, Dean of Women at the University during the years 1935 to 1955. This scholarship covers full tuition for two semesters. It is presented annually to an outstanding and deserving upperclass woman student.

Claude Worthington Benedum Scholarships. These scholarships are awarded to undergraduate West Virginia residents enrolled in the University on the basis of need, academic ability, moral character, and extracurricular activities. Amounts may vary according to need.

Sophia and Clora Benedum Scholarship Fund. The will of the late Clora Benedum of Bridgeport established a $10,000 trust fund to be known as the Sophia and Clora Benedum Scholarship Fund. The provisions of the will state that "income is to be used in assisting graduates of Bridgeport High School in attending West Virginia University." Two scholarships are awarded each year on the basis of top grades of all students from Bridgeport High School.

Board of Governors Student Body President Scholarship. This scholarship is to be awarded to the student elected as president of the student body during the academic year in which he serves most of his term. The scholarship entitles him to remission of all fees except those for special services.

Delta Delta Delta Local Award Scholarship. This scholarship is open to all undergraduate women attending West Virginia University. It is based on need, scholarship, and service to the community. The presentation is made each spring. For further information contact the Delta Delta Delta Sorority House.

Delta Gamma Alumnae Chapter Scholarship. As a part of the sorority's national philanthropic project, the local alumnae chapter awards $100 annually to a deserving blind student.

Monticola Scholarship. The *Monticola,* the campus yearbook, sponsors one tuition and fees scholarship with a payment of $115 for one semester. It shall be awarded twice a year to two different individuals. The awarding shall be based on academic achievement and service to the University. Recommendations will be taken from the Academic Deans and Directors, the Dean of Women, and the Director of Student Affairs. These recommendations will then be reviewed by the *Monticola* Scholarship Committee.

Morgantown Business and Professional Women's Club Scholarship Loan Fund. The Morgantown Business and Professional Women's Club will award a scholarship loan to a junior girl who is a resident of Monongalia County and graduated from a Monongalia County secondary school and who has given evidence of academic achievement, need, and good moral character. The amount of the scholarship loan will be $230 per year. Repayment is to begin at least six months after the recipient's graduation and is to be repaid in full within two years after graduation. There is no restriction as to the field of study.

O. J. Morrison, Jr., Memorial Fund. This is a bequest to the University for the establishment of a trust fund for scholarships in memory of O. J. Morrison, Jr., of Charleston, former University track captain. This gift was provided for in the will of Freda Morrison Smith, who died in 1955. Mrs. Smith expressed the wish that the earnings from the trust fund go to aid such boys and girls who for financial reasons would not be able to attend college. Mrs. Smith and Mr. Morrison were two of the five children of the late O. J. Morrison of Charleston, founder of the Morrison department stores.

Olin Mathieson Employees' Scholarship. The employees of Olin Mathieson Chemical Corporation (Morgantown Ordnance Plant) established a scholarship fund in West Virginia University for the purpose of giving aid and encouragement to children and/or grandchildren of former employees of the Corporation's Morgantown operation wherever they may now reside, to secure college training in any chosen field of study. The value of this scholarship is $200, and the recipient may continue to receive such grants from year to year for four years if academic and character standards of the University are met. (It is planned to expand this to a double scholarship, providing equal amounts to each of two individuals). The recipient will be chosen by the University, and selection of applicant will be made on the basis of: (1) ability to do college work, (2) character and personality, and (3) need for financial assistance to attend college. Candidates from any undergraduate class rank may be considered. In case no candidates are available from families of employees for a period of three consecutive years, the University is free to select other worthy recipients who may qualify under the above conditions.

F. F. McIntosh, Jr., Scholarship. This scholarship in memory of F. F. McIntosh, Jr. is awarded annually to a young man or woman from Roane County and has a value of $100 per year. Selection of the scholar will be made by the West Virginia University Alumni of Roane County.

Sigma Tau Sigma Scholarship. This scholarship is given by the Sigma Tau Sigma student tutoring honorary in the hope that it will help some deserving student who for financial reasons would not be able to remain in the University. It carries a stipend of $50.00 per semester in the form of a grant, if the student will accept $50.00 in the form of a loan to be repaid within one year after he graduates or leaves school. It will be awarded on the basis of scholastic ability and need.

The Louise and Arlen Swiger Scholarship Fund. This is a trust fund given to the West Virginia University Foundation for the support of scholarships in the University to aid worthy students. The scholarship is inactive at this time.

Ella May Turner Scholarship. The will of the late Miss Ella May Turner provided that annual scholarship grants of $50.00 each be awarded to the two Jefferson County students who earned the highest academic averages at the University each academic year.

West Virginia Division of the United Daughters of the Confederacy Scholarship. This scholarship was established in 1950 by the West Virginia Division of the United Daughters of the Confederacy. It has a value of $100 per year. Selection is made by the United Daughters of the Confederacy.

For Foreign Students

Board of Governors Foreign Student Scholarships. These two scholarships are available to undergraduate foreign students. Recipients are entitled to remission of all fees except those payable to State special funds and those chargeable to special services. They are awarded at the discretion of the President of the University, usually to supplement campus or civic awards, or in case of emergency.

West Virginia Federation of Women's Clubs Pan-American Scholarship. The winner of this scholarship is remitted tuition fees by the Board of Governors, and receives room, board, books, and other incidentals from the federation.

West Virginia Home Demonstration Council Foreign Scholarship. This scholarship, established in 1949 for the purpose of promoting better understanding between the rural peoples of the United States and of foreign countries, provides for books, board, and other necessary living expenses, and remission of fees for a foreign student enrolled in the Division of Home Economics.

West Virginia University All-Campus Foreign Student Scholarship. The All-Campus Foreign Student Committee, representative of several campus organizations, in 1951 established a one-year scholarship for the support of a foreign student. Board, room and incidental expenses are paid annually by the committee, with remission of tuition and fees provided bv the University.

Graduate Scholarships

For Students in the College of Agriculture, Forestry, and Home Economics

Andrew Delmar Hopkins Scholarship in Entomology. This scholarship, established in 1954, is in memory of Dr. Andrew Delmar Hopkins, internationally known entomologist and for many years director of the West Virginia University Agricultural Experiment Station. It is for $200 per year and is awarded to a worthy senior or graduate student with an interest in entomology, who has demonstrated originality and research ability.

For Students in the College of Arts and Sciences

Board of Governors Scholarships. On March 14, 1961, the Board of Governors authorized the establishment of four scholarships for each class in the Department of Social Work. The scholarships entitle recipients to remission of all fees except those payable to State special funds and those chargeable to special services.

National Society of Colonial Dames of America Scholarship. The society in 1952 established an annual scholarship for the aid of a worthy graduate student for work in the field of early American history. The annual value of the scholarship is $150. This award rotates among several institutions.

R. M. Davis Scholarship in Political Science. R. M. Davis, late Morgantown coal operator, gave the University the sum of $5,000 to establish a scholarship in the Department of Political Science. The scholarship, with an average annual value of between $300 and $500, is granted to an undergraduate or graduate student whose specialty is international relations. Scholastic standing and qualities of leadership will be given primary consideration.

The Children and Family Service Association, Wheeling. A work-study stipend of approximately $1,300 per year may be granted to employees of that agency or candidates for employment desiring to make commitment to work year-for-year. Preference given to second-year students. Candidates must have been admitted for graduate social work education. Applications for graduate social work education may be obtained from the Department of Social Work.

Family Service Association of Lycoming Valley, Williamsport, Pa. Variable amount, year-for-year commitment required. For information inquire of: Robert Janos, executive-director, Family Service Association, Williamsport, Pa.

Family Service of Cincinnati and Hamilton County, 2343 Auburn Ave., Cincinnati 19, Ohio. First- and second-year grants are available to students who are able to accept commitment to work at agency for a minimum of one year (preferably longer) following training. Preference to those who have had previous social work experience. Inquire of Department of Social Work.

Family Service of Lynchburg, Virginia. Scholarship of $1,500 for first year and at least $1,500 for second year. Commitment required. Address inquiries to Department of Social Work.

Family and Children's Service, 808 House Bldg., 4 Smithfield St., Pittsburgh 22, Pa. Scholarships available, preferably to second-year students who plan employment at agency for at least one year thereafter. Admission to Department of Social Work required before applying to agency.

Family and Children Service, 708 Commerce Bldg., Erie Pa. Applicant must be in second year of graduate work. Preference given to Erie and Erie County residents. Acceptance of scholarship carries obligation to accept employment with agency for one year following completion of course, if employment is offered. Inquire of Department of Social Work.

Family Service Association of Wyoming Valley, Wilkes-Barre, Pa. Approximately $1,000. Year-for-year commitment required. Inquire of: Miss Dorothy Cohen, executive director, Family Service Association, Wilkes-Barre, Pa.

Family Service Society, 309 Wick Bldg., Youngstown 3, Ohio. Scholarships of $1,800 for first year and $2,000 for second year. Commitment year-for-year. Field work in a family service agency for one period is required. Address inquiries to: Earl D. Morris, executive secretary, or to Department of Social Work.

Family and Children's Service, Harrisburg, Pa. Scholarship for graduate in social work education. Variable amount. Year-for-year commitment. Inquire of: Mrs. Lenore S. Meffley, executive secretary, Family and Children's Service, 201 South St., Harrisburg, Pa.

Jewish Family and Children's Service, 508 Third Ave., Pittsburgh 19, Pa. First- and second-year scholarships available for students who plan to do field work in agency. Commitment one year of employment after graduation for each year of scholarship. Apply to Department of Social Work.

Jewish Family and Children's Service, 508 Third Ave., Pittsburgh 19, Pa. First-, second- and third-year grants available. Either field work or employment commitment required. Admission to accredited school required before applying to agency. Inquire of Department of Social Work.

The Junior Leagues Scholarships. This scholarship, providing $200 a year for a graduate social work student, was established in 1942. It is jointly supported by the four leagues of West Virginia. Applicants must be residents of the State, and all applications are to be addressed to the Department of Social Work.

Maryland Department of Welfare Work-Study Plan. By arrangement with the West Virginia University Department of Social Work, employees of the Allegheny County Welfare Board, the Garrett County Welfare Board (and other local offices within commuting distance of Morgantown) may undertake two years of graduate social work education while employed by the agency at approximately $275 per nine months. Admission to the school is determined in the regular way. Field work is planned in advance in a unit of the Maryland Department of Welfare. Inquiries should be addressed to Chairman, Department of Social Work.

Mental Health Traineeships. Four to six traineeships in the amount of $1,800 per year for first-year students and $2,000 for second-year students are available from the National Institute of Mental Health, U. S. Department of Health, Education, and Welfare. Candidates who plan to prepare for a career in psychiatric social work are eligible to apply. Admission to the Department of Social Work for graduate study is a prerequisite. Inquiry or applications are to be made to the Department of Social Work.

The Morgantown Service League Scholarship. This scholarship provides $200 a year for a full-time student in the Department of Social Work. The recipient must be a resident of West Virginia, and must be approved by the Chairman of the Department of Social Work.

Pennsylvania Department of Welfare, Bureau of Children's Services, Educational Stipends. These stipends are an approximate amount of $275 per month and are available for persons who want to secure training in social work before beginning employment with Child Welfare Services, as well as for staff members who may apply for Educational Leave for professional training. Candidates for scholarships will be selected on the basis of their interest in Rural Child Welfare and their potentialities for successful performance in the profession of social work. They must: (1) meet the minimum qualifications for employment; (2) be able to qualify for admission to an accredited school of social work; and (3) be interested in public child welfare in rural counties and free to work in any part of the Commonwealth on a commitment of one year of employment for each year of training received. Applications should be made to Miss Jean Farquhar, Training Advisor, Bureau of Children's Services, Department of Welfare, Harrisburg, Pa.

Rehabilitation Traineeships in Social Work. Four or more traineeships in the amount of $1,800 per year for first-year students and $2,000 for second-year students are made available by the Office of Vocational Rehabilitation, U. S. Department of Health, Education, and Welfare. Candidates who plan to prepare for future work in rehabilitation of the physically or mentally handicapped are eligible to apply. Admission to the Department of Social Work for graduate study is prerequisite. Inquiry or application should be made to the Department of Social Work.

United Fund of Kanawha Valley Educational Stipends in Social Work. Two stipends of $1,500 per year each are available to candidates who desire to serve, upon completion of social work education, in one of the agencies in the Kanawha United Fund area (Charleston, West Virginia and vicinity). Two agencies currently designated to receive and grant these stipends are the Family Services of Charleston and the West Virginia Children's Home Society. Application is made to Department of Social Work.

Family Service of Charleston. See *United Fund* (above). Inquire of: Miss Mary Buckingham, executive secretary, Family Service of Charleston, 1117 Virginia St., Charleston 1, W. Va.

West Virginia Children's Home Society (including Davis Child Center). See *United Fund* (above). Inquire of: Miss Betty Heavener, director, Washington St., E., Charleston, W. Va.

U. S. Veterans Administration, Department of Medicine and Surgery, Social Service, Paid Field Work. Second-year students whose field placements are in the social service of a Regional Office or Hospital may apply for status of paid field work "employee." Remuneration is $2.40 per hour, that is, approximately $1,100-$1,900 during a block placement.

The West Virginia Federation of Women's Clubs Scholarship in Social Work. This scholarship provides $150 a year and is awarded to a full-time student in the Department of Social Work. The recipient, selected by the Chairman of the Department of Social Work, must be a resident of West Virginia.

West Virginia Department of Public Assistance Scholarships. These educational leave stipends, available from the Social Service Division and The Child Welfare Division, amount to $175 per month plus dependents' allowances and tuition. They are available to employees of the Department, including applicants who are accepted for employment with a view to obtaining graduate education in social work. The recipient agrees to work for the Department of Public Assistance at least one year for each year of educational benefits received. In exceptional circumstances, employees may receive stipends to complete the senior year in college. Application for the stipend is made to Mr. Benjamin Guy III, Chief, Division of Social Service, or to Miss Lillian Nagy, Chief, Division of Child Welfare. Applicants must have been granted admission for graduate education in social work; applications to West Virginia University should be addressed to the Department of Social Work.

For Students in the School of Dentistry

Board of Governors Dental Scholarships. By action of the Board of Governors of West Virginia University, twenty dental scholarships were established in 1961. The scholarships, divided equally between the four dental classes, provide for the payment of the recipients' tuition and registration fees.

To be eligible to receive a Board of Governors Dental Scholarship, applicants must have been enrolled or admitted to the School of Dentistry and must rank above the fiftieth percentile of their class in the School. In the case of entering freshmen, distinct professional promise, as indicated by performance on the Dental Aptitude Test, is used as a criterion for selection.

The Board of Governors Dental Scholarships are awarded for the number of semesters remaining in the normal course of the recipient's dental education. Such continuation, however, is assured only if a recipient maintains his academic position in the upper fiftieth percentile of his class (unless probationary status is recommended by the Supervising Committee), and if he shows evidence of leadership and good professional attitudes and maintains a satisfactory moral character.

Dental Hygiene Scholarship. The Women's Auxiliary to the Wheeling District Dental Society established, in the fall of 1962, a scholarship for a West Virginia resident enrolled in the Division of Dental Hygiene. To be eligible, the applicant should have had at least one semester of college work. This scholarship is in the amount of $80.00 per semester. Previous academic achievement, personal integrity, and financial need are evaluated by the examining committee in considering the selection of the recipient.

For Students in the College of Education

Lakin Roberts Memorial Scholarship. This scholarship is open to graduate students in education and is worth $200 per year.

For Students in the College of Law

Board of Governors Scholarships. In 1961 the Board of Governors established four annual scholarships for each class in the College of Law. Each scholarship entitles the recipient to waiver or remission of all tuition and fees except those covering miscellaneous student activities and special services. These scholarships are awarded to students who establish a reasonable case of need for financial help and who have demonstrated academic achievement and professional promise.

In awarding scholarships in the first-year class, special emphasis will be given to need for financial assistance; academic achievement and professional promise for members of this class will be weighed on the basis of the applicant's collegiate record, including extracurricular activities, but in no event will an applicant be considered unless he was graduated with at least an over-all B average. To be awarded a scholarship in his second or third year, a student must have a C+ average on his law school work. A scholarship awarded to a student will be continued for his remaining year or years if his financial need continues unchanged and he maintains a C+ average on his work in the College of Law.

Applications must be submitted on forms which may be obtained from the Secretary, College of Law, West Virginia University. Applications of each school year will be accepted between May 1 and September 1 preceding that year. Applications received after September 1 will be considered only in the event of a vacancy.

For Students in the School of Medicine

Board of Governors Scholarships. On March 14, 1961, the Board of Governors authorized the establishment of six scholarships for each class to be awarded annually to graduate students in the School of Medicine. The scholarships entitle the recipients to remission of all fees except those payable to State special funds and those chargeable to special services.

For Students in the School of Mines

Clarence Wayland Watson Memorial Scholarship. In 1955 the University received an anonymous gift for the establishment of the Clarence Wayland Watson Memorial Scholarship. Aid in varying amounts from this fund will be awarded from time to time to an outstanding and worthy graduate or undergraduate who will pursue some branch of study in coal development or coal research.

For Students in Any College or School of the University

The Masonic Grand Lodge Scholarship. This scholarship to be awarded to a graduate student who is a candidate for either the Master's or Doctor's degree. Student must have a high scholastic rating in his undergraduate or in his graduate work, not hold any other fellowship, scholarship, assistantship or grant, must enroll for a full program of courses, and be recommended by the chairman of his department. The annual stipend is $800 for one year only. Applications should be submitted to the Dean of the Graduate School, on or before July 15.

Sphinx Scholarship Award. This scholarship, established in the fall of 1960 by Sphinx, senior men's honorary, is awarded to a senior male student. The recipient must have attained a 3.0 overall average for his previous three years of study, and also must be in need of financial assistance.

Prizes and Awards

Awards for prizes in the University are made in accordance with the following rules:

No composition, in whole or part, shall be submitted in competition for two prizes.

Only students pursuing courses leading to baccalaureate degrees are eligible for any prize, except for the James F. Brown Prize.

No student shall be eligible to enter any contest who has not been a resident student in this University for at least one semester preceding the semester in which the contest is to held, and who, unless he be a competitor for the James F. Brown Prize, is not a resident student in good standing in the University in the semester in which the contest is held.

No successful contestant may become for a second time a competitor for the same prize.

Students intending to compete in any essay-writing contest must notify the Scholarship Coordinator no later than March 15. Three typewritten copies of each essay must be in the hands of the chairman of the committee not later than May 15.

The conditions upon which the awards in the several contests are made may be learned upon application to the office of the Scholarship Coordinator.

For Students in the College of Agriculture, Forestry, and Home Economics

Borden Agricultural Award. This award, established in 1954, is in the amount of $300 annually. It is made to the senior student majoring in agriculture who has achieved the highest grade in all college work preceding the senior year, and who has included in his curriculum two or more dairy courses. It is supported by the Borden Company Foundation.

Borden Home Economics Award. This award, established in 1954, is in the amount of $300 annually. It is made to the senior student majoring in home economics who has achieved the highest average grade in all college work preceding the senior year, and who has included in her curriculum two or more courses in foods and nutrition. The award is supported by the Borden Company Foundation.

Danforth Award for Agricultural College Seniors. Award presented by the Ralston Purina Company to 54 outstanding agricultural seniors from 50 land-grant universities, 3 Canadian universities, and the University of Puerto Rico. Consists of a four-week program in St. Louis and American Youth Foundation Camp in Michigan during the summer following the student's selection. Award presented to a male student who is most outstanding in balanced physical, mental, social, and religious development to represent his university at the four-week program. One student only from West Virginia University.

Danforth Award for Home Economics College Seniors. This award is given to the most outstanding home economics student entering her senior year. It includes all expenses for a four-week summer program of study. The first two weeks are spent observing modern business in St. Louis. The second two weeks are spent

at the American Youth Foundation Camp in Michigan for leadership training. The award is made by the Ralston Purina Company. The recipient is selected by the Student Aids and Grants Committee.

The La Verne B. Davis Home Economics Award. This award of $25.00 was established and is supported by Mr. and Mrs. Richard Earle Davis. It is presented annually to the graduating senior in the Division of Home Economics who has maintained the highest scholastic average during four years of residency.

The Koehler Award. This award, sponsored by Tau Chapter of Phi Lambda Upsilon, holds a cash value of $100. It is to be given to a sophomore student majoring in chemistry, chemical engineering, pharmacy, or agricultural science with the following requirements: a 3.5 grade-point average on a minimum of 11 hours of chemistry course work, and a 3.5 grade-point average on total academic record for a minimum of three semesters (not including summer terms).

The Charles Pfizer and Company Award. This award goes annually to an outstanding student who plans a career in extension work.

The Virginia Dare Award. An award of $25.00 and a plaque goes annually to the outstanding senior student in dairy foods. It is maintained by the Virginia Dare Extract Company.

West Virginia Junior Chamber of Commerce Wildlife Management Scholarship Award. This award consists of $500 annually to the winner of a state-wide essay contest on "Financial Benefits to Be Derived From a Local Conservation Project." The winner also must meet all entrance requirements of the University.

For Students in the College of Arts and Sciences

The Waitman Barbe Memorial Prize. The English Club offers a prize of $25.00 in memory of Waitman Barbe, poet, scholar, and adviser to the English Club during his long term of faculty service. It is awarded to some student, officially enrolled as a junior or senior, for creative work in the field of literature, either in prose or in poetry or in both. The minimum length of such compositions must be 4,000 words of prose or 100 lines of poetry.

The William Jennings Bryan Prize. The Honorable William Jennings Bryan, before his death, gave a sum of money, the actual income of which is offered as a prize ($50.00) to the student in the University who shall write the best essay on some subject in the science of Government.

Chi Omega Sorority Prize. This $15.00 prize goes to the sociology major with the highest academic ranking. All work done at the University is taken into account. No student is eligible to compete unless his junior or senior years have been spent at West Virginia University.

The Koehler Award. This award, sponsored by Tau Chapter of Phi Lambda Upsilon, holds a cash value of $100. It is to be given to a sophomore student majoring in chemistry, chemical engineering, pharmacy, or agricultural science with the follow-in requirements: a 3.5 grade-point average on a minimum of 11 hours of chemistry course work, and a 3.5 grade-point average on total academic record for a minimum of three semesters (not including summer terms).

The West Virginia Society of the Sons of the American Revolution Award. This award of $100 goes each year to the writer of the best essay on a special topic in the field of West Virginia history during the colonial and early national periods.

For Students in the College of Commerce

West Virginia Society of Certified Public Accountants Award. In the fall of 1957 the West Virginia Society of Certified Public Accountants established one or more awards of $100 each to be given annually to a student at West Virginia University in the last semester of his junior year as an accounting major, the selection of such student to be made by the Dean of the College of Commerce.

The Erwin Award in Accounting. This $100 award is given in April of each year to a student in the College of Commerce majoring in accounting. The college applies the criteria of scholarship, character, and interest in accounting in selecting winners.

The West Virginia Tax Institute Award. This $100 award goes annually to a senior in the College of Commerce on the basis of scholarship, character, professional promise, and interest in the field of taxation.

The West Virginia Banking Association Award. In 1961 the West Virginia Banking Association established a scholarship award to be given to a student in the College of Commerce. It holds an annual stipend of $750. The recipient is chosen by the Scholarship Committee in the College of Commerce.

The Daniel S. Witschey Award. Robert E. Witschey offers $50.00 each year to an outstanding student majoring in accounting.

For Students in the College of Engineering

The Koehler Award. This award, sponsored by Tau Chapter of Phi Lambda Upsilon, holds a cash value of $100. It is to be given to a sophomore student majoring in chemical engineering, chemistry, pharmacy, or agricultural science with the follow-in requirements: a 3.5 grade-point average on a minimum of 11 hours of chemistry course work, and a 3.5 grade-point average on total academic record for a minimum of three semesters (not including summer terms).

Dr. H. P. Simons Award in Chemical Engineering. An award, established in 1961 by Omega Chi Epsilon, chemical engineering honorary, in honor of Dr. H. P. Simons. It consists of $25 to be awarded to the chemical engineering senior who made the greatest academic improvement as a junior.

The James Wimer Memorial Award. This award pays tuition for one year. The donor desired anonymity. The award is given to the senior making the highest average his first three years in chemical engineering.

The Rufus A. West Award. The late Rufus A. West, a former instructor, because of his interest in the College and in the young men who have been and are students therein, and with the further idea of promoting sound scholarship, bequeathed $10,000, the income from which is used as an annual award to the member of the graduating class of the College of Engineering who has maintained the highest scholarship as measured by his grade-point average on the last 35 hours of University credit.

For Students in the College of Law

The James F. Brown Prize. James F. Brown, alumnus, "with a desire to stimulate the young men of the State to fuller consideration of the 'inalienable rights of mankind,' and especially those guaranteed by the Constitutions of the State and the United States," has contributed $5,000 to the University, the income from which is to be "used as a prize for the best essay or paper each year on the subject of the individual liberties of the citizen as guaranteed by the Constitutions." The income may be given as a single prize, or it may be divided into a first and second prize. For the present the award is made as a single prize of $200. The subject for the essay for the current year may be obtained from the secretary of the College of Law. Any regularly enrolled student within one year after receiving an undergraduate degree may compete for the prize. Graduates of the College of Law or the School of Medicine, or holders of any postgraduate degree, are not eligible to compete for the prize.

The Nathan Burkan Memorial Prize. The American Society of Composers, Authors, and Publishers has established the Nathan Burkan Memorial Competition, open to the leading universities and colleges of the country that offer courses in law. A prize of $100 is available to each institution, to be awarded to the student in the graduating class in law who prepares the best paper on the subject of "Copyright Law."

The Frank Enslow Legal Scholarship Award. The late Mrs. Frank Bliss Enslow of Huntington provided in her will a trust fund in support of the Frank Bliss Enslow Legal Scholarship at the University. This annual award is restricted to students enrolled in the College of Law, and selection is made on the basis of ability, character, financial status, and scholarship qualifications. Recipients must be residents of West Virginia, and preference will be given applicants from Cabell County. The amount of the scholarship will be determined from year to year. A second-year man holding the scholarship award can repeat as its winner during his final year if conditions warrant.

The Patrick Duffy Koontz Scholarship Awards. The late Patrick Duffy Koontz and Arthur Burke Koontz have donated to the University certain securities, the in-

come from which is used for the purpose of establishing scholarship awards in the College of Law for worthy students from West Virginia. The value of each scholarship is $250, and there are as many as four or five in operation concurrently. These awards are to be made to such second- or third-year students who show outstanding promise with respect to scholastic ability and attainment, moral force of character, and leadership.

The Tax Commission Prize. Five members of the State Tax Commission in 1902 —W. P. Hubbard, Henry G. Davis, John K. Thompson, L. J. Williams, and J. H. Holt —gave the sum of $1,350, later increased by unawarded sums to $1,500, the income from which is used annually as a prize for the "best original work bearing on matters of taxation in West Virginia." The conditions of the competition are determined by the Council of Administration. The prize at present is in the amount of $50. The subject for the essay for the current year may be obtained from the secretary of the College of Law.

The Tax Institute Award. The West Virginia Tax Institute has established a Tax Institute Award of $100 to be made annually to the student in the College of Law who is judged by a faculty committee to have demonstrated the most interest and to have been most proficient in the study of tax law.

The West Virginia Law School Association Awards. The West Virginia Law School Association has established annual scholarship awards to such third-year member and such second-year member of the student board of editors of the *West Virginia Law Review* as, in the judgment of the faculty of the College of Law, shall have made outstanding contribution to the *West Virginia Law Review.* The amount of each of these two annual awards is $50.00.

For Students in the School of Medicine

Thomas E. and Marjorie Losh Pyles Award. This award was established in 1962 by the estate of Marjorie Losh Pyles Boeck. A sum of $50.00 will be awarded each spring to the sophomore student in the School of Medicine who has achieved the outstanding record among his classmates in pathology.

For Students in the Division of Military Science and Air Science

Military Science Awards (Annual)

American Ordnance Association Gold Scholarship Key. The American Ordnance Association awards each year a gold scholarship key to the outstanding senior Army ROTC student commissioned in the Ordnance Corps.

Armed Forces Communications and Electronics Gold Medal Award. The Armed Forces Communications Association awards a medal each year to the outstanding Army ROTC students majoring in Electrical Engineering.

Association of the United States Army ROTC Medal. The Association of the U. S. Army awards each year a medal to the junior Army ROTC student most outstanding in military aptitude.

Lt. James C. Borden, Jr., Memorial Trophy. The West Virginia University Mountaineer Rifle Club and Gamma Pi Chapter of Sigma Nu Fraternity award each year a bronze trophy to the outstanding rifleman on the Varsity Rifle Team. The winner's name is inscribed on a plate on the base of the trophy which remains on permanent display in the Armory.

Department of the Army Superior Cadet Ribbon. The Department of the Army awards each year a ribbon to the outstanding all-around Army ROTC student in each class.

The Legion of Valor of the United States of America Bronze Cross. This cross is awarded each year to the outstanding senior student in the U. S. Army XX Corps who has been previously awarded the Department of the Army Superior Cadet Ribbon.

Lt. James E. Marshall Memorial Trophy. The Beta Psi Chapter of Beta Theta Pi Fraternity awards each year a bronze trophy to the most outstanding West Virginia University Army ROTC senior infantry student. The winner's name is inscribed on a plate at the base of the trophy which remains on permanent display in the Armory. A small metal emblem attesting to the honor is presented to the recipient.

The Dr. Ralph Mershon Memorial Award Certificate and Check ($250). The certificate and check are awarded yearly to the outstanding (nation-wide) Distinguished Military Graduate who accepts a Regular Army commission.

The National Defense Transportation Association Medal. This medal is awarded each year to 20 outstanding senior students, nation-wide, who are in the upper one-fourth of their classes and are recommended by the Professor of Military Science and the deans of the colleges in which the students are enrolled.

The Professor of Military Science Camp Certificate and Ribbon. This certificate and ribbon is awarded each year to the junior student with the highest overall summer camp score.

The Professor of Military Science Certificate and Ribbon. This certificate and ribbon is awarded each year to a freshman and sophomore student who is in the upper 10 per cent of their ROTC class, the upper one-half of their academic class, outstanding in military proficiency, and who has contributed to the U.S. Army ROTC program and to the University.

The Quartermaster Association Medal. This medal is awarded each year to 10 outstanding junior and senior students, nation-wide who are in the upper one-fourth of their classes and are recommended by the Professor of Military Science and the deans of the colleges in which the students are enrolled.

The Society of American Military Engineers Gold Medal. This medal is awarded each year to 20 outstanding junior and senior students, nation-wide, who are recommended by the Professor of Military Science and the Dean of the College of Engineering as outstanding engineering students of the year.

West Virginia Reserve Officers Association Medal. The West Virginia Reserve Officers Association awards medals each year to the senior Army ROTC student and sophomore Army ROTC student most outstanding in military aptitude.

West Virginia Society of the Daughters of the Founders and Patriots of America Medal. The West Virginia Society of the Daughters of the Founders and Patriots of America awards a medal each year to the freshman Army ROTC student most outstanding in military aptitude.

West Virginia Sons of the American Revolution Medal. The West Virginia Sons of the American Revolution awards each year a medal to the sophomore Army ROTC student most outstanding in military proficiency.

Air Science Awards

AFROTC Academic Achievement Device. Awarded each full semester to all AFROTC students attaining a cumulative academic grade-point average of 3.00 or higher and a minimum of "C" or higher in air science for the preceding semester. Any cadet who fails to maintain the criteria described above must relinquish the award until he can again meet the established criteria.

AFROTC Band Ribbon. Presented to each member of the AFROTC band in recognition of his voluntary participation.

AFROTC Drill Team Medals. Presented annually to the three outstanding members of the drill team, one to an advanced cadet, one to a sophomore cadet, and one to a freshman cadet.

AFROTC Rifle Club Medals. Presented to the three top-average seniors in the AFROTC Rifle Club. Miniature silver rifles are presented to each member of the AFROTC Rifle Club.

AFROTC Sponsor's Trophy. Presented annually to the outstanding AFROTC sponsor as determined by the advanced AFROTC class.

Air Force Association Silver Medal. The Air Force Association presents this award to the outstanding cadet in the junior year of air science for outstanding leadership, scholarship, and campus activities.

Air Force ROTC Area Championship Rifle Team Plaque and Certificate. Presented to the highest scoring rifle team within each AFROTC area, excluding the winner of the Secretary of the Air Force ROTC Rifle Match Award.

Air Force ROTC Commandant's Certificate. Presented annually to the most outstanding junior or senior cadet at the summer training unit.

Air Force Times Award. This award is presented annually to the graduating cadet who has distinguished himself by contributing materially to constructive public attention for the cadet corps.

The Air Science Honor Squadron Plaque. Presented each full semester to the AFROTC squadron attaining the highest ratings for performance at all drill periods during the semester.

Armed Forces Communications and Electronics Association Gold Medal and Certificate. Presented to a senior cadet majoring in electrical, electronics, or communications engineering who demonstrates outstanding qualities of military leadership, high moral character, and definite aptitude for military service.

Boeing Aircraft Award. Presented annually to an advanced cadet who has displayed a continuing interest in flying and possesses outstanding academic achievement and leadership potential.

Chicago Tribune Gold and Silver Medals. Each year this award is presented to one cadet in each air science year for military achievement, scholastic attainment, and high moral character.

Colonel Joe W. Compton Gold Key. Presented to a senior cadet for outstanding service to the University, the AFROTC Wing, and for demonstrating high qualities of personality, character, and leadership, in memory of Colonel Joe W. Compton, professor of air science from 1953 to 1955.

Distinguished AFROTC Cadet Badge. Awarded to each individual designated as a Distinguished Air Force ROTC Cadet.

General Dynamics Certificate and Trophy. Presented to an outstanding sophomore selected for Advanced AFROTC in a category leading to flight training.

National Defense Transportation Silver Medal. Presented to a senior who has demonstrated outstanding leadership qualities, academic achievement, and aptitude for military science and noteworthy service in the promotion of preparedness for national defense.

The Professor of Air Science Academic Medal. Awarded to the student in each air science year who attains the highest grade in air science.

Secretary of the Air Force AFROTC Rifle Match Trophy. Presented to the highest scoring rifle team in the national match competition.

Society of the American Military Engineers Gold Medal. This award is presented to the top 20 juniors and the top 20 seniors in Engineering throughout the nation who are enrolled in Air Science.

Sons of the American Revolution Bronze Medal. Presented to a freshman cadet for exhibiting in his work a high degree of leadership and military bearing.

West Virginia Reserve Officers Association Gold and Bronze Medals. Presented to a senior and to a sophomore cadet for outstanding leadership in campus activities.

For Students in the School of Mines

The Charles E. Lawall Award. This award was created in 1952 through the generosity of D. L. McElroy of Pittsburgh and is given in the first semester of each year to the senior student maintaining the best scholastic average in the first 100 hours of the required curriculum. Students in the coal mining option and the oil and gas option are eligible. The award carries a cash payment of $50.00.

West Virginia Coal Mining Institute Prize for Students in the School of Mines. In order to stimulate interest on the part of mining engineering students in their profession, the West Virginia Coal Mining Institute offers a prize of $25.00 each year to a member of the graduating class of the School of Mines. The student must be enrolled in the coal mining option and his scholarship must be the highest of that group as measured by his grade-point average.

West Virginia Oil and Natural Gas Association Prize for Students in the School of Mines. In order to stimulate interest on the part of oil and natural gas engineering students in their profession, the West Virginia Oil and Natural Gas Association offers a prize of $25.00 each year to a member of the graduating class of the School of Mines. The student must be enrolled in the oil and natural gas option, and his scholarship must be the highest in that group as measured by his grade-point average.

For Students in the School of Nursing

Betty Harris Prize for Freshman Achievement. This cash prize is awarded at the end of the freshman year to the student elected by vote of her classmates and faculty as having been most outstanding during the freshman year.

For Students in the School of Pharmacy

The Bristol Award. This award, consisting of the latest edition of Howard's *Modern Drug Encyclopedia,* is made to the graduating senior contributing most to pharmacy during the year.

The Central Pharmaceutical Journal Pharmacy Administration Award. The *Central Pharmaceutical Journal* offers an annual award of $25.00 to the member of the graduating class receiving the highest grades in Pharmacy Administration.

Dean's Mortar and Pestle Award. A hand-polished birch wood replica of a Revolutionary War Mortar and Pestle is awarded annually to a senior student for excellence in Pharmacy Administration. The award is sponsored by Johnson & Johnson. The recipient is entitled to contend for a national award of $500.

Gay H. Dent Award. Gaylord H. Dent, a successful pharmacist of Morgantown, bequeathed to the School of Pharmacy the sum of $500. The interest on this money is used to maintain the Gay H. Dent Award, which in some measure typifies the personal traits of the donor. The award is made biennially to the graduating senior, who, in the opinion of the members of the senior class, is most likely to succeed in the profession of pharmacy because of a love of service, a genial personality, and natural leadership.

Gay H. Dent Essay Award. Funds have been provided for awarding $25.00 to the student of the School who submits the best essay on some pharmaceutical subject during the second semester of the school year. A committee of students selects the subject for the essay and judges the entries.

Kappa Psi Fraternity Grand Council Scholarship Key and Certificate. The Grand Council of Kappa Psi awards annually a gold scholarship key and certificate to the graduating member of the Beta Eta Chapter of Kappa Psi who also earns First Honors in Scholarship in the entire graduating class.

Kappa Psi Scholarship Honors Certificate. Second- and third-year members of the Beta Eta Chapter of Kappa Psi, who have maintained a "B" average during the current year, are awarded Scholarship Honors Certificates by the Grand Council of Kappa Psi.

Kappa Psi Scholastic Achievement Award. The local chapter of Kappa Psi pharmaceutical fraternity offers an annual award of $25.00 to the member of the Second-Year Class having the highest scholastic average during the year. The name of the recipient is inscribed upon a plaque located in the School.

The Merck Award. Merck and Company, Inc., offers an award consisting of the current editions of *The Merck Index* and *The Merck Manual* to a graduating senior who attains a high scholastic record.

Presidential Gavel Award. McKesson & Robbins, Inc., in recognition of leadership qualities, awards annually a presidential gavel to the president of the Student Branch of the American Pharmaceutical Association.

Rexall Trophy. The Rexall Drug Company awards annually a Mortar & Pestle Trophy to a graduating senior who attains a high scholastic record.

Rho Chi Award. To promote scholarship, Alpha Mu Chapter of Rho Chi awards $25.00 for the purchase of textbooks to the first-year student attaining the highest scholastic record.

For Students in Any College or School of the University

Scholastic Improvement Award. This award of $75.00 and an appropriate key is presented at the close of each regular academic year to the freshman resident of Men's Hall showing the highest grade improvement from the first to the second semester of that year. The award was established in 1958 by the action of the faculty resident and proctors' council, with funds to be provided by the Co-op Fund of Men's Hall.

For Senior Members of Football Squad

The 1928 *Football Team Scholarship Cup and Prize.* Members of the West Virginia University 1928 Football Team established in October, 1959 a prize for the senior football player who has the most outstanding academic record for the first

seven semesters in the University. The prize consists of $100 and an engraved cup, to be placed in an appropriate place at the University, with an individual cup to each winner.

Assistantships and Fellowships

Many departmental fellowships and assistantships are available to qualified personnel in several of the University's schools and colleges. In addition, many departments offer part-time employment through a non-salary payroll arrangement. Complete information can be obtained from the department involved.

Loan Funds

Listed here are all loan funds available to University students. Most of them contain stipulations regarding their use and applicability. They are administered through the office of the Director of Student Affairs, with the cooperation of advisory committees, University officials, and alumni.

For Students in the College of Agriculture, Forestry, and Home Economics

Juanita Ferguson Memorial Loan Fund. This fund was established by friends of the late Juanita Ferguson for the purpose of helping worthy juniors and seniors majoring in the Division of Home Economics. Juniors may apply for a $200 loan and seniors for a $300 loan.

The Maude George Memorial Fund. Charles A. George of Ronceverte in 1950 established this fund in memory of his aunt. Eligible University students from Greenbrier and Monroe counties may borrow up to $50.00 per semester or $100 per academic year, as long as the fund is in effect.

The Heebink Memorial Loan Fund. This fund was established in 1958 in memory of Gerald Heebink, for almost two decades a dairy extension specialist at the University. It is intended to help needy students to get an education in dairying and related agricultural fields.

H. O. Henderson Loan Fund. This fund was established October 10, 1960 (with an initial gift of $2,212.80) by former students, friends, and dairy organizations in recognition of the late Dr. H. O. Henderson's 42 years of devoted service to the dairy industry of West Virginia, and is to be used by students majoring in Dairy Science and other allied fields of agriculture. Second-semester freshmen, sophomores, juniors, and senior students are eligible.

Ruth D. Noer Loan Fund. In February, 1961, the Ruth D. Noer Loan Fund was established from contributions by Home Economics alumnae and friends of the University to honor the former Director of the Division of Home Economics. Loans are restricted to the use of junior and senior majors in the Division of Home Economics.

For Students in the College of Arts and Sciences

The John M. Crawford and David B. Crawford Loan Fund. In 1951 the Parkersburg Rig and Reel Company established the John M. Crawford and David B. Crawford Loan Fund with an initial gift of $5,000 to assist accredited students seeking a degree in engineering or geology and who have financial need. Loans are available to students who are graduates of West Virginia high schools, and who are seeking a degree in engineering (preferably petroleum engineering) or geology.

The Lily Belle Sefton Deatrick Student Loan Fund. Established in 1947 by the Campus Club in memory of Lily Belle Sefton Deatrick, former professor of chemistry, this fund provides small loans for students without interest until after graduation. It is administered by the Dean of the College and the Chairman of the Department of Chemistry.

Charles E. Hare Geology Loan Fund. This fund was established by friends and associates of the late Charles E. Hare, Assistant Geologist of the West Virginia Geo-

logical and Economic Survey. Loans are made to students majoring in geology and are limited in amounts of $50.00 per year or $100 over several years.

The Political Science Loan Fund. Established in 1962 with a gift from Capt. Melvin G. Cooper, formerly of the Air Science staff. Loans are made to students majoring in political science and are normally given on a short-term repayment plan.

The Social Work Alumni Loan Fund. This fund was established in 1951 for the benefit of undergraduate or graduate students in the Department of Social Work, irrespective of residence. Loans are made by the Director of Student Affairs with the approval of the Chairman of the Department of Social Work. No interest is required, and loans are to be repaid within two years after the student has completed his current degree objective.

The West Virginia State Conference of Social Work Fund. This fund was established in 1940. It grants loans, without interest, to eligible full-time graduate social work students who are residents of West Virginia. Detailed information is available from the Chairman of the Department of Social Work.

For Students in the College of Commerce

American Bankers' Association Foundation for Education in Economics Loans. This foundation has assigned to the University three scholarship-loans of $300 each. These will be "awarded only to deserving students of integrity, intelligence, character, competency, and aptitude, whose means of support are dependent wholly or in part on their own labor, to enable them to continue the study of courses in banking and economics in classes of junior grade or above. Scholarship of the highest rank will not be a definite requirement for a loan-scholarship award; however, the foundation desires to encourage students who will become leaders in professional or business life and does not wish loan-scholarships granted to mediocre or inferior students." The loans are available to seniors, graduates and special students in the amount of $300 a semester for a maximum of two semesters. An interest rate of 2 per cent will apply, with repayments and interest beginning the second January 1 following graduation.

College of Commerce Student Loan Fund. This fund, established in 1957, is for small loans of short-term nature, and only for students in the College of Commerce. Loans must not exceed $75.00 and will not be made for terms longer than 90 days. No interest is charged.

Sterling Enterprises Foundation, Incorporated, Scholarship Loan Fund. This consists of a grant of $5,000 to provide 10 scholarship-loans of $500 each ($250 per semester) to students in the College of Commerce and the College of Engineering. Preference shall be given: (1) children or dependents of Sterling Enterprises employees; (2) residents of Monongalia or Preston counties; (3) any student resident of West Virginia if there are no applicants in the preferential categories. In order to qualify for continued aid, a student must maintain an average of at least 2.5. Loans are to be repaid at the rate of at least $200 per year. If payments are not made on time, then interest of 5 per cent will be added from the due date.

For Students in the School of Dentistry

American Dental Association—Fund for Dental Education—Dental Student Loan Fund. This fund was established with a contribution from the American Dental Association. Loans are made to first-, second-, third-, and fourth-year dental students and are given under long- or short-term repayment plans. A maximum loan to any one student in any one year is $600. Loans are made only upon the recommendation of the Dean of the School of Dentistry.

Oscar W. Burdats Dental Students' Revolving Loan Fund. In October, 1955 friends of Oscar W. Burdats in the Wheeling area established a student loan fund for dental students at the University in recognition of Dr. Burdats' outstanding leadership in the dental profession for more than sixty years. The fund is used for loans to worthy dental students in the University who are residents of West Virginia.

Dental School Student Loan Fund. The first contribution to this fund was made by the Woman's Auxiliary of the West Virginia State Dental Society, in the amount of $400. Undergraduate students of programs under the administration of the School of Dentistry will be eligible to receive loans.

International College of Dentists (U. S. A. Section) Student Loan Fund. This loan fund was established with a grant from the International College of Dentists. Loans from this fund are made on a long-term basis to senior dental students upon recommendation of the Dean of the School of Dentistry. A maximum loan to any student will not exceed $300.

Dentistry Fund—West Virginia University Foundation. Loans to students under the administration of the School of Dentistry may be made from a special fund within the Foundation. Contributions from the West Virginia State Dental Society and from Dr. D. A. Farnsworth in memory of his brother, Dr. F. M. Farnsworth, have been used to establish the principal of this fund.

W. K. Kellogg Foundation Dental Student Revolving Loan Fund. In August, 1958, West Virginia University received a grant from the W. K. Kellogg Foundation to establish a revolving loan fund for undergraduate dental students. These loans are made through the office of the Director of Student Affairs in collaboration with the Dean of the School of Dentistry. Sophomore, junior, and senior dental students in good academic standing are eligible to borrow from this fund. A low rate of interest and convenient repayment terms are arranged in order to help deserving students.

For Students in the College of Education

Teachers Training Scholarship Loan Fund. In 1957 the State Legislature created the West Virginia Scholarship Loan Fund for teacher trainees for public purpose of relieving the teacher shortage in schools. In each county there is a selection committee comprised of the County Superintendent of Schools (Chairman) and the Board of Education. Annually, by the first day of May, each county committee shall select and recommend to the State Superintendent of Free Schools for appointment from that county their quota of graduates who are interested in teaching. Each person selected shall rank in the upper third of the members of his or her graduating class, and be a bona fide resident of the county from which selected. Each scholarship loan carries a stipend of $500 for a school year.

For Students in the College of Engineering

Eta Kappa Nu Loan Fund. This fund is available to engineering students in good standing. All loans are subject to the conditions specified by the By-Laws of Eta Kappa Nu.

Charles B. Seibert Memorial Loan Fund. This loan fund was established as a memorial to the late Charles B. Seibert, former professor of electrical engineering at the University. Loans are to be made on a short-term basis to students majoring in electrical engineering.

Sterling Enterprises Foundation, Incorporated, Scholarship Loan Fund. This consists of a grant of $5,000 to provide 10 scholarship-loans of $500 each ($250 per semester) to students in the College of Engineering and the College of Commerce. Preference shall be given: (1) children or dependents of Sterling Enterprises employees; (2) residents of Monongalia or Preston counties; (3) any student residents of West Virginia if there are no applicants in the preferential categories. In order to qualify for continued aid, a student must maintain an average of at least 2.5. Loans are to be repaid at the rate of at least $200 per year. If payments are not made on time, then interest of 5 per cent will be added from the due date.

For Students in the School of Journalism

Robert H. Pritchard Journalism Loan Fund. In 1952 Dr. and Mrs. Frank V. Rueckl of Winnemucca, Nev., established a loan fund in memory of Mrs. Rueckl's father, Robert R. Pritchard, a former member of the West Virginia University Board of Governors and prominent newspaper owner and editor in Weston. This fund of $1,000 is open to use by journalism students who are residents of West Virginia. Loans up to $100 per year may be obtained by a student over four years.

P. I. Reed Journalism Alumni Loan Fund. This fund was started in 1949 by members of the journalism class of 1940 to provide small emergency loans to students majoring in journalism. The fund was raised through contributions of journalism

alumni of various classes and named in honor of Professor P. I. Reed, former director of the School of Journalism since it was formed in 1939, and formerly chairman of the Department of Journalism. Loans are to be repaid in one to three months.

For Students in the College of Law

The John W. Davis Fund. This fund was established for the making of loans to outstanding law students, and it aids worthy students each year.

For Students in the School of Medicine

Academy of General Practice Memorial Loan Fund. This fund was established by the West Virginia Chapter of the American Academy of General Practice as a memorial loan fund to honor deceased members of the Academy. Only students regularly enrolled in the School of Medicine may apply for emergency loans from this fund. Loans are limited to $200 per year and $500 total to one individual.

Fayette County Medical Society Student Loan Fund. This fund was established March 30, 1960 by the Fayette County Medical Society with an initial gift of $2,300. Loans are available to sophomore, junior, and senior students of the School of Medicine. Loans are limited to $500 per year per student. First preferences will be given to students from Fayette County, and third- and fourth-year students.

John B. Finley Fund. A fund of $1,000 was contributed by the trustees of the estate of John B. Finley of Pittsburgh, in accordance with his will, to be used to make loans to deserving students in the School of Medicine.

The General Loan Fund for Medical Students. This fund was established in 1958 for the general aid of needy and deserving medical students.

The Kellogg Foundation Fund. The Kellogg Foundation in 1942 allotted $5,000 to the University for loans to students of medicine. Loans may not exceed $500 per year. Interest is charged at the rate of 2 per cent. Students may not borrow until after successful completion of one term in the School of Medicine.

Margaret Montgomery Watts Memorial Loan Fund. This fund of $700 was established June, 1963 by friends of Margaret Montgomery Watts, who had been actively interested in The Friends of the University Hospital, Mortar Board, and the Y.W.C.A. This fund is used for loans to graduate students in the Basic Medical Sciences who have completed the masters degree and its equivalent.

Howard T. Phillips Loan Fund. The late Dr. H. T. Phillips of Wheeling set aside in his will a grant of approximately $1,000 for loans to medical students at the University. Dr. Phillips stipulated that loans from this fund should be made to "students who are deserving as well as needy and who are enrolled in the School of Medicine."

Thomas E. Pyles Memorial Loan Fund. This fund was established in 1958 in memory of Thomas E. Pyles, who died during his first year in the School of Medicine. The fund is used for short-term emergency loans.

Dr. E. J. Van Liere Medical Student Loan Fund. This fund was established September 7, 1960 with an initial gift of $10,000, sponsored by the Alumni Association of the School of Medicine and given through the West Virginia University Foundation, Inc. It is to be used for the support of students regularly enrolled in the School of Medicine, and is planned for meeting long-term needs, rather than as an emergency fund. Loans are limited to $600 for one academic year, and $2,400 during the entire course of study.

Van Liere Medical Technology Loan Fund. This fund was established in honor of Dr. E. J. Van Liere, Dean Emeritus of the School of Medicine. Loans are made to students majoring in Medical Technology.

West Virginia University Medical School Loan Fund. Established in 1963 to provide financial assistance to deserving medical students.

William Morgan Winkler Loan Fund. This fund was established by Dr. H. J. Winkler, L'Anse, Michigan, in honor of his son, William Morgan Winkler. Loans are made available from this fund to medical students who have successfully completed at least one full semester of professional work. Loans are limited to $400 for one academic year and to no more than $1,000 during the student's medical school career.

For Students in the Division of Military Science and Air Science

ROTC Loan Fund. This loan fund, which honors the late Col. Samuel B. Roth, professor of military science and tactics from 1950 to 1953, was established in 1956 by a $200 gift from an anonymous donor. It is to be used to make small emergency loans to students in Advanced Army and Air ROTC.

For Students in the School of Mines

Central West Virginia Coal Mining Institute Scholarship Loan Fund. This fund provides annually two scholarship loans of $700 per year each. The loans are renewable from year to year, and are repayable on a scheduled basis after graduation.

The John M. Crawford and David B. Crawford Loan Fund. In 1951 the Parkersburg Rig and Reel Company established the John M. Crawford and David B. Crawford Loan Fund with an initial gift of $5,000 to assist accredited students seeking a degree in engineering or geology and who have financial need. Loans are available to students who are graduates of West Virginia high schools, and seeking a degree in engineering (preferably petroleum engineering) or geology.

Monongahela Valley Coal Mining Institute Loan Fund. The Institute in 1952 established a loan fund of $1,500 to aid worthy students in the field of coal mining engineering who are residents of Monongalia County. Loans may be made to students beyond their first semester in mining engineering on a short-time basis without interest.

New River and Winding Gulf Mining Institute Scholarship Loan Fund. In February, 1961, the New River and Winding Gulf Mining Institute established a scholarship loan fund of $4,400 to aid deserving students from Raleigh and Fayette counties, West Virginia, enrolled in the mining engineering curriculum of the School of Mines. Scholarship loans may be made to freshmen, upperclassmen, and graduate students.

G. Ralph Spindler Loan Fund. This fund was established in memory of G. Ralph Spindler, late Dean of the School of Mines. Loans are available to junior, senior, and graduate students in the School of Mines. Applicants must have at least a 2.0 overall academic average.

Fred G. Wood and Nannie D. Wood Loan Fund. In 1949 this fund was created by an initial gift of $1,000 from the late Fred G. Wood, a former Raleigh County coal operator. The provisions state that loans shall be made to assist students to receive training in the engineering of coal mines, and that "preference shall be given to students from families engaged in coal mining, or who have grown up in coal mining communities."

Fred G. Wood and Nannie D. Wood Loan Fund No. 2—(Mine Electricians, Raleigh County). This fund was started June 1, 1951 by the late Fred G. Wood with an initial gift of $600, supplemented by one-third of the rental of properties given to the University by Mr. and Mrs. Wood, and is intended to be used by students in the field of mining who are pursuing courses to train them for the supervision and maintenance of electrical equipment used in coal mines. Preference is to be given to students from Raleigh County.

For Students in the School of Music

Weldon Hart Memorial Loan Fund. In 1957 a memorial loan fund was established by friends of Weldon Hart, former director of the School of Music. The emergency fund is available to students enrolled in the School of Music.

For Students in the School of Nursing

C. Jeanette Oswald Loan Fund. This fund was established by a bequest from C. Jeanette Oswald who for many years was in charge of the nursing education curriculum at the University. Loans from this fund are to be made to students seeking degrees from the West Virginia University School of Nursing.

For Students in the School of Pharmacy

Alfred Walker Loan Fund. A special fund for small loans to students registered in the School of Pharmacy has been established in memory of Alfred Walker, the first president of the State Pharmaceutical Association.

For Students in Any College or School of the University

Anne Bailey Chapter of the Daughters of the American Revolution Student Loan Fund. This fund was established by the Anne Bailey Chapter of the Daughters of the American Revolution for the purpose of helping worthy and needy students. Students must have at least a 2.0 academic average to be eligible for a loan from the fund. Loans vary in amount from $10.00 to $250.

Claude Worthington Benedum Scholarship Loan Fund. The Claude Worthington Benedum Foundation in 1952 established this fund with an original gift of $5,000. Additional gifts have been made to the fund from time to time. Deserving students from West Virginia who are in need of financial assistance to complete their educations are eligible for aid.

The Chauncey Watson Boucher Fund. This fund was established in 1936 by former President C. S. Boucher in memory of his father. Seniors from West Virginia may borrow only for the payment of University fees. Loans must be repaid within two years and are interest free.

Campus Club Loan Fund for Women. Beginning in 1918 the Campus Club established an emergency loan fund for the aid of women enrolled in the University. Small loans for emergency needs are made to women students.

Chimes Loan Fund for Women. Chimes, junior women's honorary, in 1956 established a loan fund for the aid of women students. Loans shall be no less than $10.00 nor more than $100 and shall be paid in full within the school term. There is no interest charged, but a small contribution is in order for the purpose of maintaining the fund.

Elizabeth McAllister Crawford and John McLenaghen Crawford Fund. The Consolidated Natural Gas System Educational Foundation in 1950 established this fund with an initial gift of $10,000. Its purpose is to assist students who are without other resources from which their educational needs may be met. To be eligible for this aid, a student must be a graduate of a West Virginia high school, enrolled in a course leading to a degree, and must have completed at least the first semester of the freshman year.

Wade Hampton and Hessie Kirk Hampton Memorial Emergency Loan Fund. This fund was established in 1957 by the six children of Wade Hampton and Hessie Kirk Hampton, and is designed to aid in the form of emergency loans any student who is a citizen of the United States. If applicants are numerous, preference is to be given students whose parents are coal miners or are employees in a coal mine.

John F. Kennedy Memorial Loan Fund. This memorial loan fund was established by participants in the 1963 High School Leadership Conference. Small loans for emergency purposes are to be made for short periods of time to worthy students.

Charles E. Lawall Fund. This was established in 1939 for small loans to worthy students, and is available to students whose scholastic record has been satisfactory. Interest is payable only for periods in excess of the time for which the loan is granted.

Leon Leonian Memorial Fund. This fund was established in 1945 for small loans to students for short periods without interest. It honors the memory of Dr. Leon Leonian, a former University staff member.

National Defense Student Loan Fund. Congress on August 23, 1958 passed the National Defense Education Act. The Act provides for the creation of a University loan fund from which needy undergraduate and graduate students may borrow on reasonable terms for the purpose of completing their higher education. Special consideration in the selection of loan recipients shall be given to students with a superior academic background who express a desire to teach in elementary or secondary schools, and whose academic background indicates a superior capacity or preparation in science, mathematics, engineering, or a modern foreign language.

C. R. Orton Memorial Loan Fund. This fund, established in 1955, honors the memory of Clayton R. Orton, former dean of the College of Agriculture, Forestry, and Home Economics. It is available for small emergency loans to any University student.

Raleigh County Alumni Association Loan Fund. This association established a loan fund in 1953 for the aid of students enrolled from Raleigh County. Any officially enrolled student who has permanent residence in Raleigh County may procure aid from the fund when it is available.

Revolving Emergency Loan Fund. This fund to meet emergencies of University students was established in 1931. The principal amounts to about $5,000. Loans are of small amounts and are made for short periods of time only.

Helen Sterrett Jones Memorial Loan Fund. This fund of $1,000, established in September, 1959, honors the late Helen Sterrett Jones. It was established by former colleagues in Y.W.C.A. and Mortar Board, in which Mrs. Jones was actively interested. Loans are available to deserving women students who show need and normal academic progress.

The Ira Errett Rodgers 1928 Football Team Emergency Loan Fund. This fund was established in 1959, by the 1928 West Virginia University Football Team members in honor of their coach, the late Ira Errett Rodgers. This fund is designed to meet emergency needs of the members of the varsity football squad. Loans are to be of small amounts and made for short periods of time only.

Senior Class Loan Fund. A gift of $100 was given by the 1949 senior class to be used for aid to seniors in the University needing financial assistance. The class of 1950 made an additional gift of $100. Small loans are made without interest.

Service Clubs Loan Fund of West Virginia University, Incorporated. The West Virginia Kiwanis District in 1950 established a non-restricted loan fund for needy University students; and more recently other service clubs also have made donations. This fund is available to any student who is in good standing and is in need of financial help. It is operated on a non-profit basis.

Theodore Smith Fund. In 1930 Theodore Smith, a University student, was drowned. His death disclosed the fact that he was being financed through the University by the late James E. Jones. He had taken out a life insurance policy of $2,000 with Mr. Jones as beneficiary. In deference to the memory of Theodore Smith, Mr. Jones turned the $2,000 over to the University for the establishment of this fund.

Stewart Student Loan Fund. This fund was established in 1958 by the faculty and staff of the University to commemorate Irvin Stewart's 12 years as president of the University. Loans for essential expenses are available to any worthy and needy student. No interest is charged while the student is enrolled, nor for six months thereafter. An interest rate of 3 per cent per year will apply thereafter.

P. C. Thomas Fund. This fund was established in 1943 in memory of the late P. C. Thomas of the Koppers Coal Company. The initial contribution made by the employees of the company was $520.

United Student Aid Fund. West Virginia University is a participant in the United Student Air Fund loan plan. This program offers loans through participating banks to students from any academic field. Applications must be approved by the Office of Student Affairs.

ADMISSIONS, FEES, AND REGULATIONS

Admission To Undergraduate Colleges and Schools

ADMISSION FROM SECONDARY SCHOOLS

Students may be admitted to the University on the basis of examination or transcripts from accredited high schools. High school graduates are required to present credit for 4 units of English and 1 unit of algebra. In addition agriculture, chemistry, forestry, geology, mathematics, physics, and the health sciences require 1 unit of geometry. Engineering and mining majors are required to present 2 units of algebra, 1 unit of geometry and ½ unit of trigonometry, or its equivalent. Students who do not meet these requirements in mathematics may apply for admission to the pre-engineering curriculum.

All students entering as first term freshmen are required to take the American College Testing Program tests (ACT) and have the report of scores sent to the University.

It is recommended that students deficient either in mathematics or English (on the basis of high school record or ACT scores) attend the Summer Session of the University to make up these deficiencies. Students admitted conditionally must make up all deficiencies before they can be classified as sophomores.

Students from West Virginia high schools should obtain applications for admission from their high schools. Out-of-state students may write the Office of Admissions and request an application form. Applicants should prepare their part of the application and then return them to the secondary school. The schools will then send the completed applications and a transcript of high school grades directly to the Office of Admissions. Applications and transcripts must be received by the University at least three weeks in advance of registration.

Students should not apply for admission until they have met the requirements as outlined in the application forms. Students are either fully admitted or they are rejected on the basis of the evidence available at the time. The University does not hold applications for further grades. Therefore, it is suggested that only students meeting the stated requirements apply.

West Virginia University encourages students to work to their capacity and to advance as rapidly as appropriate in their academic work. Therefore, qualified juniors and seniors who take college level subjects offered in their schools in cooperation with the CEEB Advanced Placement Program should take the appropriate three-hour examinations administered by the Advanced Placement Service and have the scores and tests sent to West Virginia University. Credit for corresponding West Virginia University courses is automatically given for high achievement in these tests.

Students may also petition departments to take placement examinations covering courses offered at West Virginia University. Credit or advanced placement is given for satisfactory completion of these tests.

TRANSFER STUDENTS

Applicants for transfer from another college or university should submit the following to the Office of Admissions:

(1). A completed application for undergraduate admission.
(2). A certified transcript of all college work taken to date, including a statement of good standing. A certified statement covering subjects subsequently taken should be sent as soon as it is available.
(3). Catalog pages describing all subjects which have or will have been completed; the applicant's name should be written on each page and each subject indicated by a check mark in the margin. Complete catalogs should not be sent.

Transfer students are expected to present an average based on all work attempted at other institutions of higher education equivalent to a "C" (2.0) or higher. Credit is transferable only in courses carrying a grade of "C" or higher.

Students desiring to transfer into the College of Engineering or School of Mines must also have a "C" (2.0) average or higher for all college level mathematics courses.

All applications and transcripts must be received at least three weeks in advance of registration.

Credit accepted from accredited Junior Colleges is limited to 72 semester hours.

SPECIAL STUDENTS

Persons not desiring to become candidates for a degree may, by special permission, be admitted as special students. Such students are subject in all respects to the usual rules relating to registration and scholarship. Admission to any class is subject to the approval of the instructor in charge.

ADMISSION OF FOREIGN STUDENTS

Foreign citizens applying for undergraduate entrance must have their completed applications available for review at least four months prior to the date of enrollment. Decisions about admissions cannot be made until complete records have been received. Inquiries and applications should be addressed to the Office of Admissions.

Students applying as undergraduates should have completed the equivalent of a secondary education and ranked higher than average in their class.

Preliminary applications, prepared by the Institute of International Education, are available at United States Consulates and United States Information Agency offices. Students with a native language other than English are required to take the "Test of English as a Foreign Language." Applications for the test should be addressed to: TOEFL, Educational Testing Service, Princeton, New Jersey.

Information is available at the above named offices.

Foreign students should make all arrangements for their financial obligations to West Virginia University and for their entire stay in the United States before leaving their countries.

ADVANCED STANDING EXAMINATION

Application for advanced standing on work of college grade for which college credit cannot be established on the basis of official transcript of record should be made to the Registrar of the University. Upon payment of the proper fee the Registrar will issue an examination permit. After examination, the department will report to the Registrar the University courses, if any, for which the applicant is entitled to credit.

PHYSICAL EDUCATION GENERAL PROGRAM

All students entering the University with less than 58 semester hours of college credit are required to complete certain courses in physical education, unless previous credit is allowed. All men students take 2 hours of physical education courses, Phys. Educ. 1 and 2, during their first year of residence. All women students take 4 hours of physical education courses. Physical Education 3 is required of all freshman women. To complete the 4-hour requirement, students elect one course from each of the following groups:

Group 1—Phys. Educ. 14, 15, 16 ..... (Swimming)
Group 2—Phys. Educ. 5, 11, 17, 18 ..... (Dancing)
Group 3—Phys. Educ. 4, 7, 8, 9, 10, 13, 21, 25 (Individual or Team Sports)

The University Health Service will determine whether students are physically qualified for required physical education courses and for active participation in other University activities.

VETERANS

The University recognizes that men and women from the Armed Forces who enter college require individual and personalized guidance in order to facilitate their entrance and to aid their adjustment to University life. The Veterans Coordinator is available for consultation and help in the solution of personal problems which may arise in the transition to civilian student life.

Information regarding educational opportunities made possible at the University through provisions of the G.I. Bill of Rights (Public Law 550), the Vocational Rehabilitation Program of the Veterans Administration (Public Law 16), and the War Orphan's Educational Assistance Act of 1956 (Public Law 634) may be obtained from the Veterans Coordinator by personal conference or by mail.

An honorably discharged veteran of the armed forces of the United States with a minimum of one year active duty shall be exempted from any additional work in Basic Military and in the Physical Education general program on submission of due proof thereof to the Registrar. Students with six months but less than one year service are exempted from taking the first year of Basic Military. Scholastic hours credit will be allowed for military training for which a student is exempted.

DIVISION OF MILITARY SCIENCE AND DIVISION OF AIR SCIENCE

Requirements

West Virginia University, a beneficiary of the Act of Congress of 1862, offers in time of peace four-year courses of instruction in Military Science and Air Science. Normally successful completion of one of these courses and degree requirements leads to a commission as Second Lieutenant in the United States Army Reserve, or the United States Air Force Reserve. Distinguished military graduates of West Virginia University may apply for and be offered commissions as second lieutenants in the Regular Army or the Regular Air Force, under conditions prescribed by law.

The course comprises two years of basic training (Military Science 1, 2, 3, and 4, or Air Science 1, 2, 3, and 4); two years of advanced training (Military Science 105, 106, 107, 108, or Air Science 105, 106, 107, and 108); and summer camp for six weeks' duration for Military Science students and four weeks' summer training for Air Science students during the summer following the junior year. The Army summer camp and Air Force summer training is conducted at government expense, and eligible students are paid approximately $75.00 monthly in addition to traveling expenses at the rate of 5 cents per mile.

All male students not specifically exempt by provisions of the appropriate paragraph below are required by Chapter 18, Article 11, of the official Code of West Virginia, and by orders of the Board of Governors of the University, to complete satisfactorily the entire basic course as prerequisite to graduation from the University.

Within deferment quotas established by Public Law 758, 80th Congress, qualified and selected enrolled students are offered the opportunity of being deferred by the Professor of Military Science or the Professor of Air Science from military service under the Selective Service Act of 1948 and Selective Service Extension Act of 1950, as amended by the Universal Military Training and Service Act, November, 1951 as amended, until completion of their military courses and receipt of the baccalaureate degree. Such deferment is subject to cancellation should the student not be selected for the advanced course, fail to remain in good standing, or fail to develop the qualities expected of an officer.

Curriculum

Basic Course: Instruction averages three hours per week for the four semesters of the freshman and sophomore years. Two hours of instruction each week are conducted in the classroom, and for half of each semester (first half of the first semester, last half of the second semester) a two-hour laboratory is conducted each week in which the student receives instruction in drill and command. These

laboratories are held on Tuesday, Friday, and Saturday for Military Science students, and Monday, Wednesday, and Thursday for Air Science students. Two hours' credit is allowed for each semester's work.

Advanced Course: The third and fourth years of instruction in Military Science or Air Science comprise the Advanced Course and correspond to the junior and senior years of the student's academic course. Entrance into the advanced course is elective on the part of the student and selective on the part of the services. Selection is based on the student's record and on service regulations and in military science is limited in total numbers of yearly quotas. Application for the Military Science Advanced Course should be made at the beginning of the second semester of the student's sophomore year. Eligibility for the Air Science Advanced Course begins with successful completion of the Air Force Officers Qualifying Test in the second semester of the freshman year. Candidates must pass a physical examination and meet a selection board in the second semester of the sophomore year. A grade-point average of 2.000 is one of the prerequisites for enrollment in the advanced programs.

Each student who is enrolled in the advanced course agrees to complete the course including the summer camp and, if tendered, accept a commission in a reserve component as prerequisites for his graduation from the University unless excused by proper authority.

Air Science advanced course students may be permitted to substitute University courses in the general field of political science for portions of the senior air science curriculum.

Senior Air Science students enrolled in Category I (Pilot) are required to participate in the Flight Instruction Program, if offered. This program consists of 35 hours of ground instruction and 36½ hours of dual and solo flight instruction for the private pilot's license. The 35 hours of ground instruction is included in the junior and senior curriculum. There is no additional fee for this program.

Senior military science students may participate in a flight instruction program if physically qualified and selected. The program is of the same content and duration as above and is in addition to the regular ROTC course. There are no additional fees for this program.

Courses of instruction are listed in Part III of this *Catalog*.

Allowances

The advanced Army or Air Science student is paid a commutation of subsistence allowance of approximately 90 cents per day or $27.00 per month. The Army student is paid monthly and the Air Science student is paid quarterly. A deduction of $1.80 is made from the allowance for each unexcused Military or Air Science class absence.

Uniform, equipment, and Military or Air Science textbooks are issued to all cadets.

Deposit

All ROTC students are required to pay a deposit of $20.00 to cover any loss or damage to Government property while in his possession. The deposit is paid to the University Comptroller at time of registration and it is refunded, less a nominal administrative charge, upon return of the undamaged property. Advanced cadets in both programs are permitted to keep their uniforms upon successful completion of the program.

Exemptions

The following students will not be required to enroll in the Division of Military Science or Division of Air Science, but may elect to do so with the approval of the Professor of Military Science or the Professor of Air Science:

(1) Those who are not citizens of the United States.
(2) Graduate students.

(3) Students who are taking only short courses, the special interim courses, or extension work.
(4) Transfer students who at the time of matriculation have established 58 semester hours with the Registrar of the University.
(5) Students who have successfully completed the two-year basic Army, Navy, or Air Force ROTC course at any institution maintaining a Senior Division unit. Those who have satisfactorily completed one, two, three, or four semesters of ROTC training in a senior division will be allowed comparable hours credit and exemption from comparable military training.
(6) Students who are more than 24 years and 3 months of age on day of registration.
(7) Students who are physically unable to perform military training.

Students who have had previous training, other than in a senior division ROTC unit, will be allowed exemption from military training as determined by the Professor of Military Science, or the Professor of Air Science, and the Registrar. Scholastic hours credit will be allowed for military training for which a student is exempted. Students applying for entrance who have had previous ROTC training should request the institution where such training was received to submit the pertinent ROTC student's records to the University prior to the date of registration.

Students with more than one year of previous honorable active service in one of the armed forces are exempted from taking basic military training (i.e., Military or Air Science 1, 2, 3, 4). Students with six months but less than one year's active service are exempted from taking the first year of the basic course. Scholastic hours credit will be allowed for military training for which a student is exempted. See "Courses of Instruction" (Part III of this *Catalog*) for Military Science and Air Science.

Exemptions will be determined by the Director of the Student Health Service (physical exemptions), and the Professor of Military Science or the Professor of Air Science, who will notify the Registrar and the student's adviser.

Organization

The conduct of military science and air science instruction is the responsibility of the Professor of Military Science and the Professor of Air Science, who together with their military staffs, are officers and non-commissioned officers of the U.S. Army and the U.S. Air Force on duty at West Virginia University.

ROTC Bands

There is an Army ROTC Band and an Air Force ROTC Band. Membership is restricted respectively to basic Army and Air Force ROTC students. Assignment to one of the bands is determined by audition before the Director of the Band.

ADMISSION TO THE GRADUATE SCHOOL

Applicants holding bachelor's degrees from West Virginia University or other accredited institutions may be admitted to the Graduate School. The application for admission must be filed with the Office of Admissions. The applicant must request the Registrar of the college or university previously attended to send an official transcript to the Office of Admissions. The transcript and application should be received by the Office of Admissions well in advance of registration so that the adviser may review the student's program. Application forms may be obtained from the Office of Admissions of the University.

A $10.00 application service fee is required and must accompany the application.

Admission to the Graduate School does not in itself constitute acceptance of the student as a candidate for an advanced degree. There may be special qualifying examinations, a probationary period of satisfactory graduate work, or other departmental requirements to be satisfied prior to acceptance for candidacy by the department. The student should contact the chairman of the department of his choice to determine the requirements for candidacy. Students who are not accepted candidates for advanced degrees may enroll for any course for which they have the prerequisite training. Credits so earned apply to satisfying degree requirements

if and when the student later becomes a degree candidate. Undergraduate deficiencies, generally inadequate background, or lack of adequate facilities in a given department may prevent or delay acceptance of the student as a degree candidate by the department of his choice.

Eligible students who wish to further their education without reference to higher degrees may be admitted to the Graduate School and may elect courses for which they can satisfy the prerequisites.

Complete information is available in the *Announcements* of the Graduate School.

THE COLLEGE OF COMMERCE

Applicants seeking admission to the College of Commerce for the purpose of obtaining a degree must have earned at least 58 semester hours of required and approved elective courses in the Pre-Commerce curriculum at a grade average of not less than "C." No student will be admitted who has not completed Economics 1 and 2 and Accounting 1. Freshmen and sophomores are enrolled as Pre-Commerce students in the College of Arts and Sciences where their programs of study will be directed by Pre-Commerce advisers.

THE SCHOOL OF DENTISTRY

Applicants for admission to the School of Dentistry should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

A $10.00 application fee is required and must accompany the application.

Applicants for admission must present evidence of having completed successfully two full academic years (60 semester or 90 quarter hours) of work in the liberal arts in an accredited college based on the completion of the prescribed four-year high school course. All science courses shall include both lecture and laboratory instruction. The college courses shall include not less than 6 semester hours credit each in English composition and rhetoric, in biology (preferably zoology), in physics, in inorganic chemistry, and in organic chemistry.

A dental aptitude testing program is sponsored by the Council on Dental Education of the American Dental Association and approved by the American Association of Dental Schools. Applicants for admission to the School of Dentistry are required to take the aptitude tests and to submit the resulting scores. The scores achieved on these tests will be considered as a factor in the selection of students. The tests may be taken in any one of the dental schools, or any one of the testing centers set up in colleges and universities throughout the United States. Information concerning the places, and the dates on which the tests will be given, may be obtained from the Secretary of the Council on Dental Education, c/o American Dental Association, 222 East Superior Street, Chicago 11, Illinois.

A personal interview with the Committee on Admissions is required. Interviews will be at the Medical Center, West Virginia University, and will be arranged as far as possible, to suit the convenience of the applicant.

Good physical and mental health are essential for the successful study and practice of dentistry. Good eyesight is particularly important. The applicant who is admitted to the School of Dentistry must present on or before the day of enrollment, a certificate from his opthalmologist stating the condition of his eyes, and if any correctible defects in vision exist he shall present evidence that proper corrections have been made.

A deposit fee of $50.00 is required when the applicant accepts offer of admission. This amount will be applied as part-payment of the tuition fee when the applicant registers for the first semester. The deposit will be forfeited if the applicant fails to register.

Division of Dental Hygiene. The dental hygiene program is a division of the School of Dentistry. Its curriculum offers a four-year degree program for dental hygienists. Upon the fulfillment of all prescribed requirements and with the recommendation of the School of Dentistry, the candidate shall be awarded the degree, Bachelor of Science in Dental Hygiene. The general admission policies established by West Virginia University shall be met. The applicant must be a graduate

of an accredited high school or preparatory school which is acceptable for college entrance. One unit in both algebra and plane geometry will be necessary for admission. The Dental Hygiene Aptitude Test will be required of every applicant.

Further details concerning requirements of the School of Dentistry may be obtained by writing to the Assistant Registrar, Medical Center.

THE COLLEGE OF EDUCATION

Requirements for admission to the College of Education shall be the completion of 58 semester hours of approved college work, with an average of at least 2 grade points per credit hour on all work attempted. Candidates for a Bachelor's Degree in Education register for their first two years of work in the College of Arts and Sciences. Freshmen and sophomores who expect to enter the College of Education will indicate their intention when they register. Their studies will be directed by advisers for pre-education students. Such students should so arrange their courses of study as to satisfy requirements for junior standing and should be fulfilling requirements for the certification of teachers.

THE COLLEGE OF ENGINEERING AND THE SCHOOL OF MINES

For admission to the College of Engineering or the School of Mines, prospective students must be qualified for admission to the University, present credit for 2 units of algebra and 1 unit of geometry (1 unit plane geometry or 1 unit integrated geometry or ½ unit plane geometry and ½ unit solid geometry) and ½ unit of trigonometry. Students who do not meet these requirements in mathematics may apply for admission to the pre-engineering or the pre-mines course in the College of Arts and Sciences.

It is highly recommended that prospective students take the American College Test (ACT) in the spring preceding their admission to the College of Engineering or School of Mines. Based upon these tests results, it is further recommended that those students who require an additional background in mathematics or English attend the summer session of the University, enrolling in courses such as Mathematics 3 (College Algebra), Mathematics 4 (Plane Trigonometry), and English 0. Completion of these courses will permit the student to enter the regularly scheduled engineering program at the beginning of the fall semster.

Student desiring to transfer from another college, school or university into the College of Engineering or the School of Mines must meet the following requirements:

(A). Have a grade-point average of 2.0000 or higher for all college level courses (English 0, Mathematics 0, 1, 2, and 7 count for entrance only).

(B). Have a grade-point average of 2.0000 or higher for all mathematics courses excluding only Mathematics 0 and 1.

THE SCHOOL OF JOURNALISM

A candidate seeking admission to the School of Journalism for the purpose of obtaining a degree must have satisfied requirements for admission to one of the University undergraduate colleges and must have earned at least 58 semester hours of college credit. A student deficient in the physical education service program and military science will be required to take these subjects as soon as possible. During his freshman and sophomore years he should have completed satisfactorily all or most courses specified for prejournalism majors. A prejournalism student not maintaining at least a "C" average during his first two years in all college subjects must apply directly to the School of Journalism Committee on Scholarship for admission to the School.

THE COLLEGE OF LAW

Application forms may be obtained from the Registrar. Every applicant for admission must request the proper registrars to send directly to the Registrar at least one month prior to registration a complete transcript of record in every college or university attended. Evaluation of credentials is made by the Registrar.

No applicant will be admitted who previously shall have attended another law school and who shall be ineligible to return to that school in good standing. No applicant will be admitted who has been convicted of a crime which is ground for the annulment or suspension of a license to practice law in West Virginia.

Beginning students are admitted to the College of Law only at the beginning of the first semester.

All candidates for the degree of Bachelor of Laws must present a baccalaureate degree from an institution of approved standing. Any degree from such an institution will be regarded as satisfying the requirements for admission provided that, in the opinion of the Scholarship Committee of the College of Law, the degree satisfies the entrance requirements of the Association of American Law Schools.

All candidates for admission to the College of Law are required to take the Law School Admission Test (LSAT), administered by the Educational Testing Service, Princeton, New Jersey.

Beyond the general requirement as to acceptable credits, the College of Law does not prescribe the courses which must be presented for admission. It is essential, however, that a student, before entering upon the study of law, should have a thorough grounding in English, particularly English composition. A student will not be graduated with the degree of Bachelor of Laws if he is markedly deficient in the use of English; and if it appears upon his written examinations that he is seriously handicapped in this regard, he will be required to correct the deficiency before he is permitted to continue in the College of Law. A student should also have a comprehensive grounding in history, particularly American history and constitutional history, and in general, in enough of the social sciences and humanities to give him a broad informational and cultural background and to develop in him a disciplined reasoning faculty. It is desirable to include some courses in mathematics, accounting, economics, and Latin. The individual needs of the student, however, may well be considered and it is therefore inadvisable to lay down fixed rules.

Applicants for admission to advanced standing must satisfy the ordinary requirements of admission to the first-year class, must have successfully pursued the study of law in a school which if in the United States is a member of the Association of American Law Schools, and must have received credit for courses equivalent to those required of students in the College of Law. Such applicants must have received an average of "C" or its equivalent on all work taken at such other law school or law schools. The extent of credit allowed for work done elsewhere is determined by the Scholarship Committee. A student will not be allowed credit, however, for work carried in another law school unless the student received thereon a grade of "C" or its equivalent.

THE SCHOOL OF MEDICINE

Applicants for admission to the School of Medicine should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

A $10.00 application fee is required and must accompany the application.

The requirements outlined below may be met in either of two ways: first and preferably, by pursuing a course of study leading toward a Bachelor's Degree with major and minor fields of the applicant's own choosing; or secondly, by following a more rigidly prescribed curriculum generally offered as a "Premedical" curriculum. In either case, the applicant must have completed satisfactorily the minimum requirements listed below:

English Composition and Rhetoric	1 year
Zoology or Biology (with laboratory)	1 year
Inorganic Chemistry (with laboratory)	1 year
Organic Chemistry (with laboratory)	1 year
Physics (with laboratory)	1 year
Social Studies	1 year

A total of 90 semester hours of work exclusive of military or air science and physical education is required.

The number of students the medical school can accommodate is strictly limited. Applications for admission are considered by the Committee on Admission of the School of Medicine, which selects those with the higest qualifications of scholarship and personal fitness. An important factor is the score of the applicant in the Medical College Admissions Test sponsored by the Association of American Medical Colleges and given at suitable times. Students should consult premedical advisers about this test or should write to The Psychological Corporation, 304 East 45th St., New York, New York, 10017. Applications for admission may be made as much as a year in advance of the opening date.

Each applicant is expected to deposit $50.00 before his name is entered upon the official list of those accepted to the School of Medicine. If the applicant enrolls, this sum is applied to the tuition of the first semester. If the application is withdrawn after the applicant has been offered a place and has made a deposit, such deposit may be refunded at any time prior to January 15 of the year in which enrollment is anticipated.

Admission Requirements for Medical Technology. Admission requirements for the first year (pre-medical technology) are those for the College of Arts and Sciences, namely, 15 units of high school work including subjects specified in the *Announcements* of the College of Arts and Sciences. Mathematics, chemistry, and physics are very desirable.

Admission to the third year (Medical Technology 1) is based upon two years of collegiate work with a total of 67 hours, exclusive of military science, as follows:

English. 12 semester hours. (Must include 6 hours composition and rhetoric and 6 additional hours in literature.)

Biological Science. 8 hours. (General Zoology or General Biology are acceptable.)

Chemistry. 16 hours. (Inorganic Chemistry, 8 hours; Quantitative Analysis, 4 hours; Organic Chemistry, 4 hours.) It is recommended that, if possible, the 8-hour course in Organic Chemistry be taken.

Physics. 8 hours.

Physical Education. 4 hours for women, 2 hours for men. (University requirements for students taking first two years in residence.)

Algebra. 3 hours.

Electives to complete the required hours. Electives should be in the fields not covered in the required subjects. Courses such as bacteriology, parasitology, and comparative anatomy should not be taken until after the completion of the sophomore year. A foreign language is recommended for students who plan to do graduate work.

Further details concerning admission requirements of the School of Medicine or the Division of Medical Technology may be obtained by writing to the Assistant Registrar, Medical Center.

THE SCHOOL OF MUSIC

Students who meet University entrance requirements are admitted to the School of Music provided they pass the freshman music talent tests to the satisfaction of the examining committee, and meet the Applied Music entrance requirements as set forth in the published *Announcements* of the School of Music. All students will be examined at least twice a year, in January and in May, to determine the progress made.

Students transferring to the School of Music from other colleges and schools will be required to present a minimum average of 2.0. Exceptions may be made in the case of first-semester freshmen.

In the School of Music special provision may be made to permit talented individuals to take work in Applied Music without credit.

Advanced standing in applied music is given only by examination.

THE SCHOOL OF NURSING

Applicants for admission to the School of Nursing should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

A $10.00 application fee is required and must accompany the application.

The School of Nursing requires that applicants graduate from an approved high school in the upper one-third of the class. Applicants must meet University entrance requirements as to high school subjects and should preferably show strong preparation in mathematics, sciences, and languages. Each applicant must also submit scores from testing by the American College Testing Service (ACT). Pre-entrance medical and dental examinations are required. Applicants will be notified regarding appointment for personal interview with faculty of the School as soon as all application materials have been received.

Students in other schools and colleges who wish to apply to transfer to the School of Nursing will be required to present a minimum average of 2.0 (C) for previous college work. Transfer students are accepted as beginning sophomores and must complete a minimum of three years in the School of Nursing.

Each applicant is expected to deposit $50.00 before his name is entered upon the official list of those accepted to the School of Nursing. If the applicant enrolls, this sum is applied to the tuition of the first semester. If the applicant fails to enroll, this deposit fee is forfeited by the applicant.

Registered nurses who wish to complete requirements for the baccalaureate degree are admitted as special students.

Inquiries should be directed to the Assistant Registrar, Medical Center.

THE SCHOOL OF PHARMACY

The professional curriculum of the School of Pharmacy is based on two years of pre-pharmacy requirements. The pre-pharmacy requirements are as follows:

Algebra	3 hr.	Chemistry, Organic	8 hr.
Trigonometry	3 hr.	Physics	8 hr.
English Composition	6 hr.	Electives from	
Principles of Economics	6 hr.	Core Group A	12 hr.
Chemistry, General	8 hr.	Core Group B	6 hr.
Biology, General	8 hr.		
		TOTAL	68 hr.

Group A (At least two subjects): Art; Music; Foreign languages and literature, including Latin and Greek (above the elementary level); Literature of the English language; Philosophy.

Group B: History; Psychology; Political Science; Sociology.

Students required to take Military or Air Science will be exempt from an equivalent number of hours of electives in Core Groups A and B. A "C" average is considered the minimum standard for admission.

For admission to the School of Pharmacy, formal application should be made to the Admissions Committee of the School as early as possible after February 1 but before August 1, preceding the fall term in which the student is seeking enrollment.

Applicants for admission to the School of Pharmacy should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

A $10.00 application fee is required and must accompany the application.

Each applicant is expected to deposit $50.00 before his name is entered upon the the official list of those accepted to the School of Pharmacy. If the applicant enrolls, this sum is applied to the tuition of the first semester. If the applicant fails to enroll, this deposit fee is forfeited by the applicant.

Complete information may be obtained from the Dean of the School of Pharmacy or from the Office of the Assistant Registrar, Medical Center.

REGISTRATION

Persons not registered as University students and who are not members of its administrative or teaching staffs shall not be admitted to regular attendance in University classes.

All students are expected to register on days set apart for registration at the beginning of each semester or session of the University.

Immediately after completion of registration, all students must pay fees at the Comptroller's desk in the Field House Annex (South).

Late Registration

No student will be permitted to register in the University after the eighteenth day of a semester or the ninth day of the Summer Session, without the special permission of the dean of the college or school which he proposes to enter. No student registering late will be permitted to enroll for more hours of work than the number of weeks in actual attendance without the permission of the Committee on Scholarship of the college or school concerned.

Visitors

Full-time University students may attend classes as visitors, provided they obtain the written permission of their advisers and of the instructors in classes they desire to visit. Members of the administrative or teaching staffs, or other regular employees of the University, may attend classes as visitors provided they obtain written permission of the chairmen of their departments and of the instructors in the classes which they desire to visit.

No record is kept of the work and attendance of persons admitted to classes as visitors and no credit is given for their work in such classes.

Persons eligible to attend classes in the University as visitors may obtain the proper blanks from the Registrar.

Auditors

Students may enroll in courses without working for grade or for credit by registering as auditors and by paying full fees. Credit or audit status must be indicated at the time of registration. *No change in status from audit to credit or from credit to audit will be made at any later date.*

Fees and Expenses

All University fees are subject to change without notice.

All fees are due and payable at the Comptroller's desk in the Field House Annex (South) on the days of registration. Students must pay fees before registration is accepted and class tickets are released. Completion of arrangements for payment from University payroll checks, officially accepted scholarships, loan funds, grants or contracts shall be considered sufficient for acceptance of registration. Fees paid after regular registration must be paid at the Comptroller's office in the Administration Building. Any student failing to complete registration on regular registration days is subject to the late registration fee of $10.00. Students registering pay the fees shown on page 85, plus special fees and deposits as required.

The second Saturday following the beginning of General Registration for a semester is the end of the first refund period. The second Saturday following the beginning of General Registration for the summer session is the end of the refund period.

By order of the Board of Governors, no degree will be conferred upon any candidate prior to payment of all tuition, fees, and other indebtedness to any unit of the University.

Service Charge on Returned Checks

A service charge of 5 per cent of the amount of each check returned unpaid by the bank upon which it is drawn shall be collected unless the student can obtain an admission of error from the bank.

If the check returned by the bank was in payment of University and registration fees, the Comptroller's office shall declare the fees unpaid and registration canceled if the check has not been redeemed within three days from date of written notice. In such a case the student may be reinstated upon redemption of the check, payment of the 5 per cent service charge, and payment of a late payment fee of $10.00.

Remission of Fees

Tuition and fees will be remitted to a student registered in the Graduate School or the College of Law who is employed by the University on a regular appointment, subject to the following:

(a) In no case will there be remission of fees payable to State special funds or those charged to special services (see "Special Fees") and flight fees.

(b) Except as provided in "c", a graduate teaching or graduate research assistant will receive remission of tuition and fees commensurate with the hours of service required by the terms of his appointment.

(c) A faculty member on full-time appointment at any recognized institution of higher learning located in West Virginia who is taking a course of graduate study at the University and holds an appointment as a graduate assistant under the terms of Order No. 3071 of the Board of Governors will receive full remission of tuition and fees.

(d) A regular appointment is effective at the beginning of a semester or a summer session. Exemption from tuition and fees must be claimed at the beginning of the registration period or, in the case of a substitute appointment, within ten days after the appointment has been made.

(e) A student who holds a regular University appointment and is eligible for remission of tuition and fees in the second semester of any regular academic year is also eligible for remission of tuition and fees in the summer session immediately following his term of appointment.

Students on regular University appointment who are registered in the Graduate School or the College of Law for twelve credit hours or more in any semester, or for ten credit hours or more in the summer session, and who qualify for remission of fees, are not subject to the fees payable to State special funds. They are not entitled to the services provided thereby without payment of the appropriate additional fees.

The wife (or husband) of any person employed full time by the West Virginia University Board of Governors for a faculty position with the rank of instructor or above, or for a research position of equivalent rank, or as the administrative head of a University division, or as an assistant administrative head, shall be charged the same fees as resident students. The dependent children of the person so employed shall also be charged the same fees as resident students.

Effective from the date of employment, a full-time employee of West Virginia University shall be charged the same tuition and fees as resident students.

Special Fees

Late-registration fee (non-refundable)[1]	$ 10.00
Graduation fee[2]	10.00
Professional Engineering degree (including $10 graduation fee)	25.00
Student's record fee[3]	1.00
Certificate in Home Economics	2.00
Associate in Arts Degree	2.00

[1]This fee is not charged to full-time students who complete registration during the regular registration days as set forth in the University Calendar. This fee is not charged to part-time students who complete registration by the close of office hours on the second Saturday following the beginning of General Registration.

[2]The graduation fee is payable by all students at the beginning of the semester or session in which they expect to receive their degrees.

[3]One transcript of a student's record is furnished by the Registrar without charge. This fee is charged for furnishing an additional transcript.

Special extra fee for flight training:	
A.E. 171	100.00
A.E. 172	100.00
A.E. 173	100.00
A.E. 181	100.00
A.E. 182	200.00
Fee for change in registration (after 8th day)	1.00
Fee for examination for entrance credit, per unit	1.00
Fee for examination for advanced standing	3.00
Fee for General Educational Development tests (high-school level)[4]	15.00
Certificate of Advanced Study in Education	2.00
Fee for reinstatement of students dropped from the rolls	3.00
Fee for examination of candidates for graduate degree[5]	1.00
Diploma replacement fee	5.00
Physical Education Student Activity Fee	5.00
Student Identification Card Replacement Fee	1.00
Correspondence Course in Guided Reading (per course)	1.00
Driver Education Laboratory Fee	10.00
Labor Education Service (for informal activities)	2.00-10.00
Social Work Field Instruction Fee (per year)	75.00

Laboratory Fees

Consult departmental sections of this *Catalog* for information concerning non-refundable laboratory fees, deposits, and microscope rental fee. (See Biology, Botany, and Zoology, page 159; Chemistry, page 167; Geology, page 192; Home Economics, page 200; Psychology, page 227.)

Fee for Extension Work

A fee of $12.00 per semester hour is charged for each extension course.

Fees for Undergraduate and Graduate Music Students

Full-time

1. Resident Students ..... $115.75 per semester
2. Non-resident Students ..... $380.75 per semester

Part-time

1. Resident Students ..... $4.00 plus $4.00 per semester hour registration fee.
2. Non-resident Students ..... $16.00 plus $12.00 per semester hour registration fee.

Full-time or part-time students registered for Bachelors' or advanced degrees in Music or the Supervisory Training Program in Music shall pay the regular full-time or part-time tuition and Registration Fee for all courses in Music. No additional fees are assessed for Applied Music.

Students registered in other colleges or schools, including the Graduate School, may enroll in class courses in Music at the regular full-time or part-time fee per credit hour. These students may also enroll for Applied Music for a maximum of one half-hour lesson per week for one credit. The fee for this Applied Music instruction shall be $20.00 in addition to the aforementioned tuition and registration fee.

[4]If the applicant applies for admission to and registers in the University within twelve months of the date of his qualifying for the test, a $10.00 credit shall be established for him.

[5]For graduate students not otherwise enrolled at time of final examination.

Practice and Rental Fees:

(a) Practice room—one hour a day, $6.00 per semester; two hours $10.00; three hours, $14.00; four hours, $18.00.

(b) Pipe-organ practice—one hour a day, $10.00 per semester.

(c) Band and orchestra instruments—rental fee $2.50 per semester.

Summer Session Fees*

	Resident	*Non-Resident*
Tuition, per semester hour (Agriculture, Forestry, and Home Economics; Arts and Sciences; Commerce; Education; Engineering; Journalism; Mines; Music; Physical and Health Education, Recreation, and Safety)	**$8.00	†$28.00
Tuition, per semester hour (Dental Hygiene, Law, Medical Technology, Nursing, Pharmacy)	**9.00	†29.00
Tuition, per semester hour (Dentistry and Medicine)	**12.00	†38.00
Health Service Fee‡	4.00	4.00
Mountainlair fee‡	3.00	3.00
Student Union Building fee‡	2.00	2.00
Cultural Program‡	1.50	1.50

*Health Service, Mountainlair, and Cultural Program fees are not included for students enrolled in field work courses.

**Includes $4.00 per semester hour Registration Fee.

†Includes $12.00 per semester hour Registration Fee.

‡Non-refundable fees required of full-time students. May be paid by part-time students who desire the services.

A full-time student in the Summer Session is one who is registered for 10 or more semester hours of work.

Semester Fees

A part-time student (graduate or undergraduate) enrolled for courses in two or more colleges and schools shall pay fees at the rate per semester hour effective for the number of hours in each college and school.

If the student (graduate or undergraduate) is enrolled for 12 or more hours in courses offered by two or more colleges and schools, but less than 12 in any one, he shall be considered to be a full-time student and shall pay the fees for special services (Athletics, Health Service, Mountainlair, Cultural Program, and Student Union Building) in addition to the part-time rates per hour for courses in each college and school.

If the student (graduate or undergraduate) is enrolled for 12 or more hours in courses offered by colleges and schools in Group I, he shall pay the full-time rate effective for Group I. (Does not include Flight Training. Does not include Applied Music for students who are not candidates for degrees in Music.) This student shall pay the part-time rate for any courses in colleges and schools in Group II and Group III.

If the student (graduate or undergraduate) is enrolled for 12 or more hours in courses offered by colleges and schools in Group II, he shall pay the full-time rate effective for Group II and may elect courses in colleges and schools in Group I at no additional cost or may elect courses in colleges and schools in Group III at the part-time rate effective for Group III. (Does not include Applied Music or Flight Training.)

If the student (graduate or undergraduate) is enrolled for 12 or more hours in courses offered by colleges and schools in Group III, he shall pay the full-time rate effective for Group III and may elect courses in Group I or Group II at no additional cost. (Does not include Applied Music or Flight Training.)

SEMESTER FEES IN THE COLLEGES AND SCHOOLS

(See Footnotes 6, 7, 8, 9, 10)

	Full Time		Part Time (Per Semester Hour)	
	Resident	Nonresident	Resident	Nonresident
GROUP I Agr., For., and Home Econ. Arts and Sciences Commerce Education Engineering Journalism Mines Music Physical and Health Education, Recreation, and Safety	$65.75* plus Registration Fee of $50.00.	$230.75* plus Registration Fee of $150.00.	$4.00 plus $4.00 per semester hour Registration Fee.	$16.00 plus $12.00 per semester hour Registration Fee.
GROUP II Dental Hygiene Law Medical Technology (Jr. and Sr. Years) Nursing Pharmacy	$80.75* plus Registration Fee of $50.00.	$255.75* plus Registration Fee of $150.00.	$5.00 plus $4.00 per semester hour Registration Fee.	$17.00 plus $12.00 per semester hour Registration Fee.
GROUP III Dentistry Medicine	$142.75* plus Registration Fee of $50.00.	$360.75* plus Registration Fee of $150.00.	$8.00 plus $4.00 per semester hour Registration Fee.	$26.00 plus $12.00 per semester hour Registration Fee.

*Includes Athletics Fee $8; Student Organizations Fee $1.25; Daily Athenaeum Fee $1.50; Health Service Fee $6, (for Dental Hygiene; Medical Technology, junior and senior years; Dentistry and Medicine $9); Mountainlair $4; Student Union Building Fee $3; and Cultural Program Fee $2.

Parkersburg Branch of West Virginia University: $20.00 per semester hour.

Refunding of Fees

A student who officially withdraws from the University may arrange for a refund of fees by submitting to the University Comptroller evidence of approval of the refund by the Registrar.

To withdraw officially a student must apply to the Registrar for permission. Semester fees will be returned in accordance with the following schedule:

First refund period ending on the second Saturday following the beginning of General Registration.	50% of Athletics Fee, Student Organizations Fee, Daily Athenaeum Fee, Health Service Fee, Mountainlair Fee, Student Union Building Fee, and Cultural Program Fee, all chargeable to Special Services; and all other semester fees less $2.50. (Under no circumstances is the amount retained less than $2.50).
Second refund period ending on the fourth Saturday following the beginning of General Registration.	50% of Athletics Fee, Student Organizations Fee, Daily Athenaeum Fee, Health Service Fee, Mountainlair Fee, Student Union Building Fee, and Cultural Program Fee, all chargeable to Special Services; and 80% of all other semester fees.
Third refund period ending on the sixth Saturday following the beginning of General Registration.	60% of semester fees not chargeable to Special Services.[10]
Last refund period ending on the eighth Saturday following the beginning of General Registration.	40% of semester fees not chargeable to Special Services.[10]

[6]A full-time student is one who is registered for 12 or more semester hours of work each semester of the regular academic year, or 10 or more semester hours of work during the Summer Session. A full-time student during the regular academic year receives an Identification Card which entitles him to admission to all athletic events. A full-time student during the regular academic year or during the Summer Session is entitled to free medical consultation and advice from the University physician. A moderate charge is made for room calls, X-rays, special laboratory tests, drugs furnished by the University Pharmacy, minor operations, treatment of fractures and dislocations, and intravenous treatment.

[7]A part-time student is one who is registered for fewer than 12 semester hours per semester during the regular academic year, or for fewer than 10 semester hours during the Summer Session.

[8]No person shall be considered eligible to register in the University as a resident student who has not been domiciled in the State of West Virginia for at least twelve consecutive months next preceding college registration. No nonresident student may establish domicile in this State, entitling him to reduction or exemptions of tuition, merely by his attendance as a full-time student at any institution of learning in the State. A minor student whose parents acquire a West Virginia domicile after the student's original registration will be deemed to have the domicile of his parents and become entitled to pay resident fees. Moreover any student who has originally paid nonresident fees may become entitled to pay resident fees, if after an interim of nonattendance or otherwise he has established a valid legal domicile in this State at least twelve months prior to his registration in the University. In any event, the appointment of a guardian for a minor student temporarily resident in West Virginia, other than the designation of a natural guardian, shall not in and of itself operate to establish a West Virginia domicile for such student.

[9]The minimum rate for non-credit courses is that charged for one semester hour of credit.

[10]Athletics Fee, Student Organizations Fee, Daily Athenaeum Fee, Health Service Fee, Mountainlair Fee, Cultural Program Fee, and Student Union Building Fee, all chargeable to Special Services, nonrefundable during this period.

The University Board of Governors has ordered that students called to the armed services of the United States be granted full refund of refundable fees, but no credit, if the call comes before the end of the first three-fourths of the term, and that full credit by courses be granted to men called to the armed services of the United States if the call comes thereafter; provided, however, that credit as described above will be granted only in those courses in which the student is maintaining a passing mark at the time of his departure for military service. In the recording of final grades, for three-fourths of a term or more, both passing and failing grades are to be shown on the student's permanent record card.

CLASSIFICATION OF STUDENTS

The following table shows the number of semester hours required for classification as second-year, third-year, and fourth-year students and for graduation, according to the curricula in the several colleges, schools, and divisions. First-year students must satisfy the requirements as set forth on pages 71-72.

COLLEGE AND DEGREE	HOURS REQUIRED TO CLASSIFY AS Second-Year Student	Third-Year Student	Fourth-Year Student	Required for Degree
AGRICULTURE, FORESTRY, AND HOME ECONOMICS				
B.S. (Bachelor of Science)	26	64	100	144
B.S. in Agriculture (B.S.Agr.)	26	64	100	144
B.S. in Forestry (B.S.F.)	30	70	110	150
B.S. in Wood Science (B.S.W.S.)	30	60	95	138
B.S. in Home Economics (B.S.H.E.)	25	58	92	128
AGRICULTURAL ENGINEERING				
B.S. in Agr'l Eng'g (B.S.Agr.E.)	30	72	112	148
ARTS AND SCIENCES*				
Associate in Arts (A.A.)	25	..	..	64
Bachelor of Arts (A.B.)				
Regular	25	58	92	128
Premedical	32	58	96	128
Combined (Dentistry)[11]	32	58	96	132
Combined (Medicine)[12]	32	58	96	132
BACHELOR OF SCIENCE (B.S.)				
Geology	32	58	99	132
Chemistry	34	69	103	136
Nursing Education	25	58	92	128
Physics	34	69	103	136
Social Work	25	58	92	128
Speech Correction	34	68	104	140
COMMERCE				
B.S. in Bus Ad. (B.S.Bus.)	..	58	92	128
B.S. in Economics (B.S.Ec.)	..	58	92	128
DENTISTRY				
Doctor of Dental Surgery (D.D.S.)	33	70	106	142
B.S. in Dental Hygiene (B.S.D.H.)	30	65	101	136

*Unless otherwise stated, a minimum of 128 hours is required for all degrees awarded by the College of Arts and Sciences. This must include at least 124 hours exclusive of required Physical Education and required Military or Air Science.

[11]Fourth year in the School of Dentistry.
[12]Fourth year in the School of Medicine.

COLLEGE AND DEGREE	HOURS REQUIRED TO CLASSIFY AS Second-Year Student	Third-Year Student	Fourth-Year Student	Required for Degree
EDUCATION[13]				
B.S. in Elem. Educ. (B.S.E.Ed.)	..	58	92	128
B.S. in Secondary Educ. (B.S.Sec.Ed.)	..	58	92	128
ENGINEERING[14]				
Bachelor of Science	27	60	94	133
B.S. in Aerospace Eng'g. (B.S.A.E.)	30	72	112	146
B.S. in Chem. Eng'g. (B.S.Ch.E.)	30	72	112	146
B.S. in Civil Eng'g. (B.S.C.E.)	30	72	112	148
B.S. in Elec. Eng'g. (B.S.E.E.)	30	72	112	144
B.S. in Ind. Eng'g. (B.S.I.E.)	30	72	112	146
B.S. in Mech. Eng'g. (B.S.M.E.)	30	72	112	143
JOURNALISM				
B.S. in Journalism (B.S.J.)	..	58	92	128
LAW				
Bachelor of Laws (LL.B.)	27	54	..	81
MEDICINE				
Doctor of Medicine (M.D.)	36	72	†	‡
B.S. in Medical Technology (B.S.Med.Tech.)	25	58	100	135
MINES				
B.S. in Eng'g of Mines (B.S.E.M.)	30	72	112	154
B.S. in Petroleum Eng'g (B.S.Pet.E.)	30	72	112	154
MUSIC				
Bachelor of Music (B.Mus.)	30	64	102	136
NURSING				
B.S. in Nursing (B.S.Nsg.)	30	64	96	133
PHYSICAL AND HEALTH EDUCATION, RECREATION, AND SAFETY				
Bachelor of Science in Physical Education (B.S.P.E.)	28	58	92	128
Bachelor of Science in Recreation (B.S.Rec.)	28	58	94	130

†At least 3 quarters of clinical work.
‡At least 7 quarters of clinical work.

[13]For the Degrees of Bachelor of Science in Education, at least 10 hours of residence work must be in Education.

[14]Students matriculating with 58 or more hours of credit may graduate without credit for Physical Education, thus reducing the total hours required for graduation.

Cost of an Academic Year's Work

A student's textbooks will cost approximately $80.00 a year, and his registration fees $231.50 to $391.50 if he is a resident; or $761.50 to $1,021.50 if a nonresident. Students in engineering will use drawing instruments costing from $15.00 to $30.00. Non-refundable fees range from $2.00 to $16.00. In air and military science a $20.00 deposit is required to cover military equipment in the custody of the student, practically all of which is returned to the student when he accounts for his equipment. Board and room may be obtained at from approximately $660 to $720 a year. Traveling expenses, clothing, and other miscellaneous items will depend largely upon the taste and habits of the individual student. In general, however, it may be said that the legitimate cost of a 9-month term of residence at the University ranges from $1,200 to $1,800.

EXAMINATIONS AND REPORTS

Courses

As a rule courses extend through one semester only. In the College of Law, however, courses may extend either through the entire year or through one semester. No credit will be given for less than an entire course except by special order of the Committee on Scholarship. Grades given at the end of the first semester in courses extending throughout the year are merely indicative of the quality of work done by the student to that point and do not give credit for the part of the course so far completed. Such first-semester grades may be considered in determining the final grade, however.

Mid-Semester and Final Examinations

In practically all courses offered in the University, the student receives both a preliminary or mid-semester grade and a final grade. The mid-semester standing of a student is based on the daily recitation grades and a special test given during one or more regular recitation periods. Mid-semester grades are not entered on the Registrar's records. The final grade is based on the class standing for the entire semester and on a written final examination to which a special period of two or three hours is devoted.

Examination Periods

Mid-semester examinations are held during the week immediately preceding the day for mid-semester reports as set forth in the University Calendar. Final examinations are held during the last week of each semester of the academic year, and during the last two days of the Summer Session.

Absence From Examinations

Students are required to take all regular examinations. If a student attends a course throughout the semester and is absent from examination without permission, the instructor shall count the examination as zero and report the final grade as "F." If, in the opinion of the instructor, absence of the student was for satisfactory reason, the fact will be recorded on the student's class ticket, the grade "I" will be returned, and the student may, upon application to the instructor, take the examination at a later date.

Reports

Mid-semester grades are reported to students' advisers and to deans but are not recorded in the office of the Registrar.

Final grades are reported by instructors directly to the Computer Center. Final grades must be reported to the Computer Center within 48 hours after the closing hour of the examination. The rule also applies to the final grades of all students registered in other colleges or schools of the University who are enrolled in law courses.

The final standing of all seniors provisionally approved for graduation shall be reported by their instructors to the deans of their colleges or schools, and the final standing of all graduate students provisionally approved for graduation shall be reported to the Dean of the Graduate School. Special report cards are supplied by the Registrar.

A report of each student's work is made at the close of the semester or summer session to the student himself or to his parents or guardian.

Absences

Students shall attend all classes, including laboratory sessions, for which they are registered, unless prevented from doing so by illness, injury, authorized University activities, or other reasons approved by their deans. The student who is absent for any of the foregoing reasons is nevertheless responsible for the work missed.

SCHOLASTIC STANDING AND GRADE POINTS

Grading System

A—excellent (given only to students of superior ability and attainment)
B—good (given only to students who are well above average, but not in the highest group)
C—fair (average students)
D—poor but passing[15]
F—failure
I—incomplete
W—all withdrawals prior to the end of the second week following the date set for mid-semester reports
WP—withdrew passing subsequent to the end of the second week following the date set for mid-semester reports
WF—withdrew failing subsequent to the end of the second week following the date set for mid-semester reports
X—auditor, no grade and no credit

Grade Points

The grade-point average is computed on all work for which the student has registered, except for the courses with grades of "W" and "WP," and is based on the following grade-point values:

A	B	C	D[16]	F	WF	I	X
4	3	2	1	0	0	0	0

Provided, however, that when a student receives a grade of "I" and later removes the incomplete grade, his average grade-point standing shall be calculated on the basis of the new grade.

If the final grade of a student in any course is "F," the student must take the course again in residence at the University if he desires to receive credit for it, unless the dean of the college or school authorizes the exception. The grade of "I" is given when an instructor believes that the course work is unavoidably in-

[15]Veterans of World War II or Korea may register for courses in which they have a grade of "C" or higher, but no credit will be given for the new listing.

[16]Students, unless enrolled in the School of Dentistry, College of Law, School of Medicine, School of Nursing, or School of Pharmacy, are permitted to re-register at West Virginia University for any courses for which a grade of "D" has has been received at West Virginia University while first-year students. (See pages 87-88 for classification of students). In such cases the second grade shall supersede the first, providing it is not lower than "D." All work attempted after the first year shall be included in the computation of the grade-point average for degree purposes.

For teacher certification the student is responsible for every registration in a course for which a grade of A, B, C, D, F, WF, or I is received.

The University grade-point average is computed on all work attempted in all years.

complete or that a supplementary examination is justifiable. The grade of "I" must be removed within the following semester or the next semester in which the student is in residence, and becomes a failure unless special permission is granted by the appropriate Scholarship Committee to postpone removal.

Duties of Committee on Scholarship

The Committee on Scholarship shall have authority to proceed according to its best judgment in regard to delinquent students referred to it for consideration.

All orders of the committee shall become effective when approved by the dean of the college or school.

In the exercise of its authority the Committee shall not suspend a student during a semester except for wilful neglect and in cases where the student's class grades are so low that further class attendance would be a waste of time. No suspension shall become effective until approved by the dean of the college.

Duties of Instructors

Each instructor shall be responsible for keeping an attendance record of students in his classes and shall report an excessive number of absences to the student's dean and his adviser.

Duties of Advisers

Each student on entering the University is assigned to an adviser. It is the duty of advisers to assist students in preparing schedules, to assign them to classes, and to certify their study lists to the Registrar. The adviser is expected to give to students assigned to him such advice and sympathetic guidance as they may need in the pursuance of their work in the University. Students are expected to go freely to their advisers to discuss with them their problems.

All advisers, upon receipt of reports of excessive numbers of absences, shall have conferences with the students concerned and shall make such recommendations and adjustments as are desirable and feasible. If the adviser does not find a satisfactory solution after a conference with the student, he shall report the case to the dean of the college or school.

Probation and Suspension

Any student whose mid-semester grades are below passing in courses amounting to more than half of the total number of semester hours for which he is registered shall be placed on probation for the remainder of the semester. The terms of probation are determined by the respective scholarship committees.

Any student whose grades at the end of any registration period are below passing in courses amounting to more than half the total number of semester hours for which he is registered shall be suspended from the University. A freshman, subject to the operation of this rule at the end of his first registration period in residence, shall be placed on probation for the succeeding registration period.

All actions of the Committee on Scholarship and of the dean or instructor of the college or school that affect the standing of a student shall be reported by the dean to the Registrar.

Regulations Affecting Degrees

Candidates for degrees are eligible for graduation upon completion of the requirements in the college or school in which they are registered which were in effect at the time of their first registration in that college or school, provided they apply for graduation within a period of seven years from the time of their first registration. Students who fail to complete the requirements for graduation within seven years from their first registration shall satisfy the requirements in effect at the time they apply for graduation.

The University Board of Governors has ordered that in view of public and professional responsibilities the faculty of each of the professional schools of West Virginia University shall have the authority to drop any student from its rolls whenever, by formal decision reduced to writing, the faculty finds that the student is unfitted to meet the qualifications and responsibilities of the profession.

All degrees are conferred by the Board of Governors upon recommendation of the faculties of the various colleges and schools. Degrees are granted at the close of the semester or summer session in which the students complete their work.

Candidates for degrees to be conferred at the close of the second semester must be present in person to receive their degrees unless excused by the deans of their colleges and schools. No individual may be exempt from the provisions of this University regulation except by official action of the Board of Governors.

BACCALAUREATE DEGREES

Credits and Grade Points Required

Less than 6 hours in an ancient or modern language will not be counted toward any University degree, diploma, or certificate unless work in the same language has been offered for entrance.

Six hours of English composition and rhetoric (English 1 and 2) are required of all candidates for the Bachelor's Degree in all colleges and schools of the University.

Eight hours of basic military science or air science are required of all freshman and sophomore men not specifically exempt.

Two hours of physical education for men (P.E. 1 and 2), to be taken during the first year in residence, and four hours of physical education for women, to be taken during the first and second years in residence, are required for graduation, except in the case of students entering with advanced standing amounting to 58 semester hours or more. (See page 72 for specific requirements).

Each baccalaureate degree is conditioned upon the completion of a specified number of semester hours of credit. For a tabular statement of the number of credit hours required for each degree, see the last column on pages 87 and 88 under the heading "Classification of Students."

All divisions of the University require minimum standards of scholastic quality. Grade points are computed only on grades earned at West Virginia University (including Potomac State College of West Virginia University). To be eligible for graduation, a student must have an average of "C" or an average of two grade points on all work for which he received grades (except "W" and "WP"). The College of Education, in addition to the general average of two grade points per credit hour in all subjects, requires an average of two grade points per hour of credit in Education and in each teaching field.

It is the student's responsibility to keep informed of his grade-point standing. This information may be obtained at any time from the dean of the college or school in which the student is registered.

English Proficiency Requirement

Undergraduate Students Entering the University After June 1, 1964 Who Are Candidates for an Initial Baccalaureate Degree

All such students who have completed English 2 at West Virginia University with less than a "C" grade will be required either to retake English 2 and establish a "C" or better grade, *or* take a college-level English proficiency examination to be administered by the English Proficiency Board. No student may proceed to the upper division (junior year) until he has attained either a "C" or better grade in English 2 at West Virginia University *or* a passing score in the English proficiency examination.

Transfer students will be required to take the English proficiency examination in the first semester of their residence. Those who fail to pass the examination must take English 2 at West Virginia University and establish a grade of "C" or better *or*

pass the English proficiency examination within the first two semesters of their residence. Thereafter, they will be ineligible to continue other course work toward a degree or to graduate until the English proficiency requirement is satisfied.

Undergraduate Students Entering the University Before June 1, 1964 Who Are Candidates for an Initial Baccalaureate Degree

To qualify for graduation, all such students, including transfer students, are required either to complete English 2 at West Virginia University with a grade of "C" or better *or* to pass the English proficiency examination.

The foregoing regulations do not apply to students of foreign countries whose native language is other than English.

University Core Curriculum Requirements

All undergraduates entering the University for the first time in September, 1964, or later must complete the following University core curriculum requirements in order to graduate:

I. Two semesters' work in English composition, exclusive of English 0.

II. Remedial work in mathematics to cover the deficiency if the student, upon entering the University, lacks proficiency in mathematics equal to that normally attained in two years of high school mathematics.

III. Twelve credit hours of work in selected approved courses in each of the three following disciplinary areas, including courses in at least two subjects in each group:

Group A: Art; music; foreign languages and literature, including Latin and Greek (above the elementary level); literature of the English language; philosophy.

Group B: Economics, history psychology, political science, sociology.

Group C: Biology, chemistry, geology, mathematics, physics.

Courses taken to fulfill the core curriculum requirements will be selected from a list to be prepared by the University Core Curriculum Committee. The list will include one or more courses in each of the above named disciplines and may also include both interdisciplinary courses and courses in disciplines closely related to those named. Students in certain curricula, if required to take military or air science, will be excused from a part of the core curriculum requirements at the discretion of the President of the University.

Graduation With Honors and With High Honors

Effective June 1, 1949, the University established the practice of awarding "Honors" and "High Honors" to qualified students who are candidates for the initial baccalaureate degrees. The following regulations govern these awards:

1. The computation of the average shall begin with the student's penultimate term or semester and continue in reverse chronological order until at least 48 semester hours have been counted. If, in order to total the required number of hours it is necessary to include any part of a semester or term, the work of the whole semester shall be included.

2. No graduate shall be eligible for honors unless he shall have completed at least half of the semester hours required for his degree in West Virginia University.

3. The senior year must be at the University.

4. No graduate shall be eligible for honors if his grade-point average for his final semester or term is less than 3.0.

5. Subject to the above conditions, all candidates for a baccalaureate degree whose average, as shown by the portion of the work used, is 3.6 or above, shall be graduated with "High Honors." All those whose average is less than 3.6 but 3.3 or above, shall be graduated with "Honors."

6. Fitting recognition of graduation with honors shall be made on the candidate's diploma and on the commencement program.

Requirements as to Residence

Students who come to the University from other colleges or universities are advised to make the transfer not later than the beginning of their third year and in no case will a student who matriculates in the University later than October 1 in any year be permitted to receive a degree at the next commencement.

In special cases students who desire to leave the University at the close of their third year to enter another institution with the purpose of taking a combined course leading to two degrees or of preparing for graduate study, upon application beforehand to the Committee on Scholarship of the college or school in which they are registered, may be permitted to do the work of the fourth year, or a part thereof, at such other institution and to receive the Bachelor's Degree from the University upon the presentation of the proper credits.

Except in the College of Law, no student will be granted a Bachelor's Degree by the University who has not done either a total of 90 hours or the last 30 hours of his work in actual residence at the University. No student may receive the Degree of Bachelor of Laws without at least three semesters in residence at the College of Law and the successful completion of courses aggregating at least one-half of the total number of hours required for graduation. Except with the permission of the Scholarship Committee, the last 27 hours of work must be taken in the College of Law of West Virginia University.

Maximum and Minimum Work

The maximum and minimum number of hours per semester as well as the maximum number of hours per year for which a student may register during the regular academic year of the University are as follows:

	Minimum Hours Per Semester	*Maximum Hours Per Semester*	*Year*
Agriculture	14	20	
Arts and Sciences	14	18	
Commerce	14	18	
Dentistry	16	22	
Education		18	36
Engineering	14	20	
Forestry	14	20	
Home Economics	14	18	34
Journalism	14	18	36
Law	13	16	
Medicine	17	20	
Mines	12	20	
Music	14	21	
Nursing	14	20	
Pharmacy	14	20	
Physical and Health Education, Recreation, and Safety	14	20	

A student desiring to do irregular work, more or less than the prescribed number of hours in any college, must obtain permission from the Committee on Scholarship in his college or school. This permission is not valid until it has been reported to the Registrar for record.

Work Done Out of Residence

It is the policy of the University to discourage the taking of regular residence courses in absentia. In the case of courses begun at the University and not completed because of illness or for other acceptable reasons, however, permission to complete the work in absentia under the direction of regular University instructors may be granted by the Committee on Scholarship; but in such case credit should be given only upon a report of a grade of no less than "C" on final examination.

This regulation does not apply to University extension courses.

Approval in writing must be secured in advance to elect courses offered elsewhere. An overall average of "C" is required on all work completed at the University in order to obtain such approval. Credit will be accepted for transfer for courses carrying a grade of "C" or higher when the conditions indicated above have been met.

Credit for Correspondence Work

Credit up to a maximum of 30 semester hours for work completed by correspondence in non-laboratory courses will be accepted by the University when such work is given by accredited colleges or universities that accept this work for credit toward their own degrees and whose residence work is accepted by West Virginia University.

College Credit Defined

A college credit or semester hour represents the amount of work done in one semester in one recitation hour with two preparation hours a week. From two to three hours of laboratory work are considered equivalent to one hour of recitation, according to the amount of outside work assigned in connection with the laboratory hours.

Substitution for Required Courses

A student who desires to substitute another course for any course prescribed in his curriculum or required for the degree toward which he is working must obtain permission for such substitution from the Committee on Scholarship in his college or school, but there can be no substitution from group to group.

Withdrawal from the University

A student who desires to withdraw from the University must obtain a withdrawal card from the office of the Registrar, 205 Administration Building. Withdrawal procedure will be explained to him when he obtains this card.

Students who withdraw from the University without permission will receive at the end of the semester a grade of "F" (failure) in each of the courses for which they are registered and will be indefinitely suspended from the University.

Students who desire to drop part of their work may withdraw from classes in which they are enrolled with a grade of "W" at any time prior to the end of the second week following the date set for mid-semester reports. Withdrawal permits must be approved by the adviser and accepted by the Registrar. If such withdrawal reduces the student's hours below the required minimum, the permit must be approved by the Scholarship Committee. Withdrawals after the above date will be permitted only in exceptional cases and must be approved by the Scholarship Committee of the college or school in which the student is registered.

Students must present a signed statement from the Librarian that they have returned all books and paid all library fines before they will be allowed to withdraw.

Re-Entry After Withdrawal

Students required to withdraw from one college or school of the University because of failure in their work and permitted to transfer to another unit of the University may not again register in the college or school in which they were originally registered without the consent of the Scholarship Committee of that college or school.

Part III

CURRICULA AND COURSES

ABBREVIATIONS

The following abbreviations are used in the descriptions of courses:

I—a course given in the first semester.
II—a course given in the second semester.
I, II—a course given in each semester.
I and II—a course given throughout the year.
S—a course given in the Summer Session.
hr.—number of credit hours per course.
consent—consent of instructor required.
PR:—prerequisite.

PLAN FOR NUMBERING COURSES

For convenience each course of study is designated by the name of the department in which it is given and by the number of that course. The plan for numbering is as follows:

Courses 1 to 99—courses intended primarily for freshmen and sophomores.
Courses 100 to 199—courses intended primarily for juniors and seniors.
Courses 200 to 299—advanced courses for juniors, seniors, and graduates.
Courses 300 to 399—courses open to graduate students only.

SEMESTER COURSE SCHEDULES

Before the opening of each semester, a schedule is printed announcing the courses that will be offered in the College of Agriculture, Forestry, and Home Economics; the Division of Air Science; the College of Arts and Sciences; the College of Commerce; the School of Dentistry; the College of Education; the College of Engineering and the School of Mines; the School of Journalism; the College of Law, the School of Medicine; the Division of Military Science; the School of Music; the School of Nursing; the School of Pharmacy; the School of Physical and Health Education, Recreation, and Safety; and the Evening Education course offerings.

The College of Agriculture, Forestry, and Home Economics

ORGANIZATION

Agriculture, forestry, and home economics work at West Virginia University is organized under the College of Agriculture, Forestry, and Home Economics. For the purpose of administration the College is divided into four branches:

I. Resident instruction in agriculture.
II. Resident instruction in forestry.
III. Resident instruction in home economics.
IV. The Agricultural Experiment Station, organized for research and experimental work in agriculture, forestry, and home economics.

The work of these divisions is closely interrelated. Although some members of the staff devote full time to college instruction, research or extension work, many others divide their time between two or three of the divisions.

OBJECTIVES

To provide an academic setting of excellence in which a young man or woman may attain his or her higher education goals.

To provide a selection of courses through various options for organizing different programs of study leading to proficiency in many professional fields directly in and related to agriculture, forestry, and home economics.

To provide advanced training courses leading to degrees at master's and doctoral levels.

To carry out a research program in fields and problem areas of pertinence to West Virginia.

HISTORY AND FACILITIES

In 1895 the College of Agriculture was established as a distinct college in the University. The Agricultural Experiment Station, founded in 1888, became part of the College at the time the latter was instituted. The Cooperative Extension Service was added in 1913, and in 1914 the Department of Home Economics was transferred from the College of Arts and Sciences. Organization of the College was completed in 1937 when a full four-year course in forestry was added. The name of the unit then was changed to "The College of Agriculture, Forestry, and Home Economics."

The Experiment Station was established by the Board of Regents in 1888 by authority of an Act of Congress known as the Hatch Act. Further support was given by Acts of Congress known as the Adams Act, the Purnell Act, and Bankhead-Jones Act, the Research and Marketing Act of 1946, and the Hatch Act as amended in 1955.

The College now has 900 acres of land for farming lying at a short distance from the University campus. This land is divided into five farms. Each of the farms is equipped with modern farm buildings and with special buildings for classroom, experimental, and laboratory work. A 40-acre woodlot is used for instruction and experimentation in forestry.

At Alvon, in Greenbrier County, the Division of Forestry maintains Camp Arthur Wood, devoted to field instruction and land surveying and timber estimating for students in the division who have passed two years of the professional forestry course. Camp Arthur Wood, situated in the Monongahela National Forest, is equipped with permanent buildings for instruction and living accommodations.

The Division of Forestry also has 498 acres of forest land in Randolph County which is being used for research and educational training. In addition to this work, the tract is used by extension foresters to demonstrate sustained yield and forest operation for the production of hardwood timber.

During 1951 an agreement was completed between the University and the Island Creek Coal Company making the 3,000-acre Island Creek Experimental Forest available for research in applied forestry. The experimental work conducted here is open to inspection by forestry students.

Cooper's Rock State Forest, an area of 13,000 acres fronting on Cheat Lake, is less than ten miles from the University. By agreement between the University and the Conservation Commission of West Virginia, an 8,000-acre part of this forest has been set aside as the West Virginia University Forest, Division of the Cooper's Rock State Forest. This area is managed by the Division of Forestry for research and educational purposes.

Branch experiment stations are maintained at Wardensville, Point Pleasant, Kearneysville, and Reedsville. The Reymann Memorial Experimental Farms at Wardensville was established in 1917. It occupies 987.5 acres of farm land on the Cacapon River in Hardy County. The farm is being operated on an experimental basis involving pasture improvement, erosion control, soil rebuilding, water conservation, irrigation, crops, beef cattle, sheep, and poultry.

The Ohio Valley Experiment Farm of 150 acres at Point Pleasant on the Ohio River was acquired in 1948. It is operated as a unit for the experimental work in tobacco and truck and field crops of special interest to the farmers of the Ohio and Kanawha valleys.

The University Experiment Farm, a tract of 158 acres near Kearneysville in the eastern section, was established in 1930 as a branch experiment station for the study of problems relating to fruit production, including insect and disease control, as well as problems of general farming typical of the section.

The Reedsville Experiment Farm in Preston County was acquired in 1944. Work on this 475-acre farm consists of programs with potatoes, ornamentals, small fruits, corn and legumes in rotations, livestock, and agricultural engineering.

A Home Management House and a Nursery School are located close to Oglebay Hall.

Bulletins, circulars, and pamphlets setting forth the results of experiments, investigations and recommendations are published for free distribution and may be obtained from the County Extension Agent in each county.

With its farm land, buildings, and equipment the College of Agriculture, Forestry, and Home Economics offers thorough and complete training in most branches of agriculture, forestry, and home economics that is applicable to West Virginia conditions.

COLLEGE REGULATIONS

Students in the College of Agriculture, Forestry, and Home Economics must comply with University regulations dealing with scholarship. Specific regulations that apply to the College are described on pages 11-15 in the 1964-65 *Announcements* of the College.

GRADUATE WORK

Graduate work leading to the Master of Science Degree is offered in all branches of Agriculture, Forestry, and Home Economics. Courses leading to the degree of Doctor of Philosophy are offered in the departments of Plant Pathology, Bacteriology, and Entomology, Agronomy and Genetics, and Agricultural Biochemistry.

For those students in agriculture and home economics who wish additional training beyond the baccalaureate degree, but who desire breadth of training rather than specialization in one subject-matter field, the degrees of Master of Agriculture and Master of Home Economics are available.

Teachers of vocational agriculture may combine graduate work in Agriculture and Education by taking 16 to 20 hours in Agriculture and 10 to 14 hours in Education to fulfill requirements for the M.S. Degree.

The degree of Master of Science in Extension Education is an interdepartmental program designed especially for those who require an understanding of the social behavioral sciences involved in successfully communicating their technical knowledge to people. Candidates for the program must hold a bachelor's degree in an appropriate field of study from an accredited institution, and meet all general requirements for admission to the Graduate School. The satisfactory completion of at least two years' experience in Extension or related work is desirable. The curriculum for this program is drawn from administration, education, journalism, psychology, sociology, and speech.

The student who plans to pursue graduate work should consult the Graduate School *Announcements*.

Advancement in any of the professional fields is dependent upon graduate study, and the student desiring to pursue such work should plan to continue in graduate study upon completion of the undergraduate curriculum. A limited number of graduate assistantships which permit half-time devotion to study are available in the Division of Agriculture and the Agricultural Experiment Station.

The Division of Agriculture

The Division of Agriculture offers courses of study to prepare the student for the business, education, basic and applied science, and engineering opportunities in agriculture. The agriculture industry needs engineers, scientists, teachers, managers, consultants, county agents, and conservationists, as well as farmers. A farm background is desirable for students majoring in agricultural education and applied agricultural science.

Degrees Granted in Agriculture

The Division of Agriculture offers programs of study leading to the following degrees:

1. Bachelor of Science (B.S.).
2. Bachelor of Science in Agriculture (B.S.Agr.).
3. Bachelor of Science in Agricultural Engineering (B.S.Agr.E.).

Degree Requirements

The requirements for the degree of Bachelor of Science and the degree of Bachelor of Science in Agriculture are:

1. Courses listed in the Foundation Curriculum must be completed with passing grades (for freshmen enrolling September, 1961, and beyond). Students enrolled in the Agricultural Engineering curriculum are exempt from Agriculture 11 and 12.
2. Additional courses must be taken to satisfy the requirements of the chosen Agriculture curriculum option.
3. Must satisfy University Core Curriculum Requirements (see page 93).
4. Must meet the standards of English proficiency (see page 92).

CURRICULUM IN AGRICULTURE

(EFFECTIVE SEPTEMBER, 1961)

Students enrolling as freshmen in the Division of Agriculture after September 1961 are governed by the Requirements for Degrees as specified in the new curriculum for agriculture beginning on page 101.

The new curriculum options for Applied Science, Basic Science, Business, and Education consist of two parts:

1. A series of Foundation Courses common to the curriculum options.
2. Additional requirements to each curriculum in one of the four agriculture options: Applied Science, Basic Science, Business, and Education.

Selection of Options

Students entering the Division of Agriculture as freshmen after September 1, 1961 must select one of the following options before registering for their third semester:

1. Applied Science.
2. Basic Science.
3. Business.
4. Education.

Transfer students must make their selection prior to their second registration in the Division of Agriculture.

Students interested in Agricultural Engineering, refer to the Curriculum in Agricultural Engineering, page 104.

Students interested in obtaining proficiency in agriculture, scientific writing, and journalism while acquiring extensive knowledge in agriculture and home economics, consult the *Announcements* of the School of Journalism, page 18.

Students selecting Applied Science, Business, or Education options will receive the Degree of Bachelor of Science in Agriculture as evidence of satisfactory completion of the requirements of the curriculum. Fulfillment of the requirements of the Basic Science option leads to the Degree of Bachelor of Science; that of Engineering to the Degree of Bachelor of Science in Agricultural Engineering.

Pre-Veterinary students working to meet the requirements for entrance into veterinary school may do so within the framework of either the Applied or Basic Science options, preferably the Basic Science option.

AGRICULTURE CURRICULUM OPTIONS

Applied Science Option

The Applied Science option, leading to the degree of Bachelor of Science in Agriculture, is designed for students who desire maximum specialization in the broad field of agriculture. The requirement of 30 hours of Agriculture, in addition to those in the Foundation Curriculum and the provision for free electives, will present an opportunity for specialization of broad general training in agriculture. The requirement of mathematics, statistics, biological science, and physical science will insure that this specialization will be accompanied by the basic knowledge necessary for agricultural specialization.

Basic Science Option

The Basic Science option, leading to the degree of Bachelor of Science, is designed for students who are interested in teaching agricultural science and especially for those interested in research. Although this option provides the least amount of specialization in technical agriculture, it provides a wide latitude in associated areas. A student must complete mathematics through analytical geometry, and chemistry through organic chemistry. This option provides the opportunity to develop a degree of specialization in either physiology, microbiology, soil chemistry, biochemistry, pathology, and genetics, or to develop the basic sciences through physical chemistry and calculus. Additional requirements of humanities and social science encourage the cultural development of the student.

Business Option

The Business option, leading to the degree of Bachelor of Science in Agriculture, is designed for students who may wish to enter areas of management, sales, and operation of agricultural and/or related enterprises. The Business option will provide

sufficient variety in agriculture courses and a depth of training in one area. In addition, it provides a minimum of 30 hours of business, economics, and allied subjects that will enable a student to progress rapidly in the business aspects of his vocation.

Education Option

The Education option, leading to the degree of Bachelor of Science in Agriculture, is designed to prepare students to teach in West Virginia high schools. It satisfies the West Virginia State Board requirements and those of the College of Agriculture, Forestry, and Home Economics. A program is provided to train the students in the basic and applied sciences and to prepare them for a teaching career in the field of vocational agriculture. It also includes provisions for the teaching of biological science as a second field.

THE FOUNDATION CURRICULUM

(Required In All Options)

	Hr.
Introduction to Agriculture	
Agriculture 11—Professions in Agriculture	1
Agriculture 12—Professions in Agriculture	1
Agricultural Science	
Animal Industry and Veterinary Science 51—Principles of Animal Science	4
Agriculture 52—Principles of Plant Science	4
Agronomy 2—Principles of Soil Science	3
Agricultural Engineering 10—Principles of Agricultural Engineering	3
Economics	
Economics 1—Principles of Economics	3
Agricultural Economics 103—Agricultural Economics	3
Communication Skills	
English 1—Composition and Rhetoric	3
English 2—Composition and Rhetoric	3
Speech 11—Public Speaking *or* Speech 3, Voice and Diction	3
Physical Science and Mathematics	
Chemistry 1—Inorganic Chemistry	4
Chemistry 2—Inorganic Chemistry	4
Physics 1—Introductory Physics	4
Mathematics 3—College Algebra	3
Mathematics 4—Trigonometry	3
Biological Science	
Botany 1—General Botany	4
Zoology 2—General Zoology	4
Total	57

All courses listed in the Foundation Curriculum are required of all students and should be completed with a passing grade before reaching the fourth-year status of 100 hours. Courses within this category not completed before the student attains fourth-year status still must be passed but the hours will not then count toward the total needed for graduation. Exceptional cases will be handled by the Dean.

Agricultural Engineering

See page 104 for details concerning the Agricultural Engineering curriculum.

Additional Requirements to the Foundation Curriculum
(Hours Required By Options in Agriculture)

Subject Matter Area	Applied Science	Basic Science	Business	Education	Courses for Selection*
Arts and Humanities (Group A)	12	12	12	12	See University Core Requirements (p. 93)
Behavioral and Social Sciences (Group B)	6**	6**	6**	6**	See University Core Requirements (p. 93)
Biological Sciences	8	10	0	4	Botany, Zoology, Pathology, Biochemistry, Bacteriology, Genetics, Entomology, Physiology, Biology.
Mathematics	0	4	0	0	Math. 15
Physical Science and Mathematics	4	12†	0	0	Mathematics, Chemistry, Physics, Geology, Surveying
Accounting	0	0	4	0	Agr. Econ. 110
Business and Economics	0	0	12	0	A minimum of 9 hr. in the College of Commerce. The remaining 3 hr. from either Commerce or Agr. Econ.
Agriculture‡	30	20	30	31	Courses in the College of Agr., For., and Home Econ. Business majors must have a minimum of 9 hr. of Ag. Econ.
Education and Agricultural Education	0	0	0	21	Minimum hours required for Teacher Certification in Vocational Agriculture.
Physical Education, Military or Air Science or Free Electives	10	10	10	10	
Free Electives	17	13	13	3	
TOTAL	87	87	87	87	

*Credits submitted to meet the requirements in one subject-matter area cannot be used to satisfy requirements in another subject-matter area.

**Economics 1 and Agr. Econ. 103 in the Foundation Curriculum will contribute 6 hours to all options making a required total of 12 hours.

†Chemistry 233, Organic Chemistry, and Physics 2, Introductory Physics, is required in the Basic Science Option.

‡Courses of Instruction in Agriculture may be found beginning on page 105.

NOTE: A student may pursue a curriculum option within a subject-matter area or a general course of study within each of the four curriculum options.

Suggested Agriculture Curriculum

FRESHMAN YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
*Agr. 11	1	*Agr. 12	1
*English 1	3	*English 2	3
*Bot. 1	4	*Zool. 2	4
*Chem. 1 *or* Elective	3-4	*Math. 4	3
*Math. 3	3	*Chem. 2 *or* Chem. 1	4
Phys. Ed. 1	1	Phys. Ed. 2	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	17-18		18

SOPHOMORE YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
*Econ. 1	3	*Agr. Econ. 103	3
*Chem. 2 *or* Elective	3-4	*Agron. 2	3
*Agr. Eng. 10	3	*Agr. 52	4
*AI & VS 51	4	Elective (Group A, B, or C, University Core)	3-4
*Speech 11 *or* Speech 3	3	Elective (Humanities and Social Sciences)	3
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
	18-19		18-19

JUNIOR YEAR

First Sem.	*Hr.*
*Physics 1	4

*Courses marked with an asterisk are required for all students in Agriculture, and they should be completed satisfactorily before reaching fourth-year status of 100 hours. Courses within this category not completed before the student attains fourth-year status still must be satisfactorily completed but the hours will not then count towards the total needed for graduation. Exceptional cases will be handled by the Dean. Physics 2 may be required in the Education option.

NOTE: It may be necessary for some students to take English 0 and Math. 2. Such changes in the curriculum schedule may be made with only slight reorganization.

In addition to the curriculum schedule, the student in his junior year must take additional courses in various subject-matter areas to qualify for the Bachelor's Degree in one of four options in Agriculture (see page 100).

VETERINARY MEDICINE

Admission Requirements Leading to a Career in Veterinary Medicine

West Virginia University has an arrangement with Oklahoma State University through the Southern Regional Education Board and with Ohio State University whereby each will accept up to four students annually into their Colleges of Veterinary Medicine. The students must have completed satisfactorily their pre-veterinary requirements listed below. In order to qualify for these positions the students must be bonafide West Virginia residents.

Applicants for admission to these Colleges of Veterinary Medicine must present *not less than* 60 semester hours of acceptable credit from a recognized college or university. Hours earned in military or air science or physical education or survey

courses are not counted. Most students find it advantageous to complete the requirements for both schools; therefore, the number of hours required is greater and must be distributed as follows:

	Hr.
Chemistry—including Inorganic, Organic, and Biochemistry	15
Biological Science—Zoology and Botany	12
Physics and/or Mathematics	8
English	6
Animal Science including Nutrition	7
Genetics	3
Humanities and Social Studies*	15
	66

*Oklahoma State requires 3 hours American History and 3 hours Political Science.

AGRICULTURAL ENGINEERING

(E.C.P.D. ACCREDITED)

Degree: Bachelor of Science in Agricultural Engineering

Agricultural Engineering is the application of engineering principles to agriculture. Success in the application of these engineering fundamentals to the agricultural industry requires knowledge of both biological and physical sciences. The purpose of the course is to give the student who completes it general training in agriculture and in engineering fundamentals. Considerable stress is given to the basic requirements of animal and plant life on the farm which affect engineering practices, but greater emphasis is made on a thorough knowledge of those underlying principles and methods which are the foundation of all engineering professions.

Although the curriculum gives no opportunity for specialization, Agricultural Engineering is made up of four major fields. These are Farm Power and Machinery, Farm Structures, Soil and Water Conservation, and Electric Power and Processing.

Students preparing to take Agricultural Engineering should present for entrance as many units as possible in mathematics, chemistry, and physics.

Some of the organizations and industries employing agricultural engineers are electric power companies and co-operatives; farm machinery manufacturers and distributors; manufacturers and distributors of building materials; oil companies; electric equipment and other suppliers for farm utilities; trust companies; farm management agencies; federal agencies such as Soil Conservation Service, U. S. Department of Agriculture, Federal Land Bank, and Indian Service; colleges and universities; Army and Navy, and foreign governments.

Opportunities for employment are numerous. At no time since the establishment of the profession has it been crowded, and the outlook is good for a continuance of this situation. With agriculture becoming increasingly mechanized, the demand for agricultural engineers is increasing and should continue to increase. New opportunities arise as mechanization continues. Starting salaries are in line with salaries in other branches of engineering.

Curriculum in Agricultural Engineering

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Chem. 1	4	Chem. 2	4
Math. 15	4	Math. 116	4
M.E. 20	3	Physics 11	4
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed. 1	1	Phys. Ed. 2	1
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Ag.Eng. 10	3	Physics 124	4
Physics 102	4	Math. 253	3
Math. 117	4	T.A.M. 102	3
T.A.M. 101	3	Econ. 2	3
Econ. 1	3	M.E. 121	3
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
	19		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 26	2	C.E. 115	3
E.E. 105	4	E.E. 205	4
T.A.M. 103	3	C.E. 1	2
T.A.M. 104	3	M.E. 109	2
Humanities 1	4	Humanities 2	4
English 126 *OR* Speech 11	3	Agron. 2	3
	19		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Ani. Sci. 51—Prin. of Animal Sci. *OR* Agr. 52—Prin. of Plant Sci.	4	Ag.Eng. 100	3
Ag.Eng. 230	3	Ag.Eng. 210	3
Ag.Eng. 250	3	Ag.Eng. 190	3
M.E. 201	3	Rural Sociol. 105	3
Agr.Econ. Electives*	3-2	Electives	6
Electives	3-4		18
	19		

*Agricultural Economics electives must be chosen from Agr. Econ. 240, 261, or 271.

Courses of Instruction in Agriculture

Only the technical courses offered primarily for students in Agriculture are described here. For detailed description of other courses listed as required or elective in the agricultural curriculum, see the announcement of courses in the College of Arts and Sciences or in other colleges.

Admission to any advanced elective course is conditional upon the consent of the instructor.

ASSIGNED TOPICS

In order to be eligible to take courses 180, Assigned Topics, the student must:

1. Have completed 100 hours of work and have a grade-point average of 2.5 or above.

2. Present, in advance, a written outline of the work to be done as an assigned topic. This outline must be acceptable to the Dean of the College and the department chairman concerned.

Item 1 above does not apply to special students.

A student may not receive credit toward graduation for more than 4 hours of Assigned Topics.

AGRICULTURE

Dean Dunbar; Assistant Dean Burger; Professor Scott; Staff.

Undergraduate Division

11. Professions in Agriculture. I. 1 hr. Survey of the subject-matter disciplines and of the career opportunities available to students in the Division of Agriculture. Included ordinarily is a trip to an outstanding agribusiness area.

12. Professions in Agriculture. II. 1 hr. Continuation of Agr. 11. Included ordinarily is a trip to demonstrate good farm management.

52. Principles of Plant Science. II. 4 hr. PR: Bot. 1. A basic course covering the nature, history, classification, role, distribution, structure and function, reproduction, improvement, culture, pests, storage and handling, production and marketing, and utilization of agricultural plants.

Graduate Division

360. Problem Report for the Degree of Master of Agriculture. I, II, S. 1-3 hr.

AGRICULTURAL BIOCHEMISTRY

Professor Patrick; Associate Professor Luchsinger; Assistant Professor Martin.

Chemistry and biochemistry courses are also offered in the College of Arts and Sciences and the School of Medicine.

Undergraduate Division

101. Introductory Plant and Animal Biochemistry. II. 3 hr. PR: Chem. 1 and 2, Chem. 31 or 131 or equiv. An introductory course of the biochemistry of carbohydrates, proteins, lipids, vitamins, enzymes, minerals, and horomones of plants and animals.

103. Introductory Biochemistry Lab. II. 1 hr. Experiments to demonstrate certain phases of the subject matter covered in Agr. Biochem. 101.

180. Assigned Topics. I, II. 1-4 hr. per sem.

202. Introductory Biochemistry. II. 3 hr. PR: General chemistry, organic chemistry. Open to Education majors and Master of Agriculture candidates only.

212. Principles of Biological Radionuclide Science. SI. 3 hr. This course is designed for high school science teachers and deals with the handling and usage of radionuclides in research, both for peaceful and wartime uses.

214. Biological Radionuclide Methods. I. 3 hr. PR: Chem. 1, 2, 131, or consent. Radionuclide methods and isotope handling as needed by students interested in biological research. Offered in Fall of even years.

290. General Biochemistry. I. 3 hr. PR: Chem. 238, quantitative analysis and consent. A general course in biochemistry primarily intended to meet the needs of graduate students.

291. General Biochemistry. II. 3 hr. PR: Agr. Biochem. 290 or consent. A continuation of Agr. Biochem. 290.

293. Laboratory Experiments in Biochemistry. I. 2 hr. PR or conc: Agr. Biochem. 290. Experiments to demonstrate certain phases of the subject matter covered in General Biochemistry.

Graduate Division

301. Enzymes. II. 3 hr. PR: Agr. Biochem. 290 or consent. A general survey of the chemistry enzymes for the advanced student. Offered in Spring of odd years.

303. Biochemistry of Carbohydrates. II. 2 hr. PR: Agr. Biochem. 291. The structure, properties and metabolism of sugars and polysaccharides. Offered in 1966 and in Spring of even years thereafter.

305. Biochemistry of the Lipids. I. 2 hr. PR: Agr. Biochem. 290 or consent. A consideration of the composition, analysis, processing, and metabolism of fats and other lipids. For advanced students. Offered in Fall of even years.

308. Vitamins. I. 2 hr. PR: Biochem. 101, 290, and 291 or consent. Identification, nomenclature and chemical structures, biochemical systems, biogenesis, pathology and requirements of vitamins and vitamin like compounds. Offered in Fall of odd years.

320. Special Topics. I, II, S. 2-4 hr. Advanced training will be provided through literature surveys and special research projects, in such areas as biochemical techniques, animal nutrition and metabolism.

325. Advanced Biochemistry Laboratory. I. 2 hr. PR: Agr. Biochem. 290 or concurrent registration. Methods and techniques in the study of proteins and related subjects, including principles of fractionation, electrophoresis, ion exchange, lyophilization, microbiological analysis, and other applicable techniques. Offered in Fall of odd years.

326. Advanced Biochemistry Laboratory. II. 2 hr. PR: Agr. Biochem. 290. Special techniques used in the study of lipids, enzymes, and carbohydrates, such as distillation at low pressure, low temperature fractional crystallization, counter current distribution, purification of enzymes, kinetic studies, and glass blowing. Offered in Fall of odd years.

330. Mineral Metabolism. I. 3 hr. PR: Chem. 1, 2, 31; Biochem. 290-291, or consent. The inorganic and biochemistry of the minerals in the body and the physiological function of minerals are studied. A special term paper is required of each student on the mineral metabolism studies. Offered in Fall of even years beginning in 1966.

350. Seminar. I, II. 1 hr. per sem.

380. Research. I, II. 1-6 hr. per sem.

NOTE: Students assigned to a 200 course for graduate credit will be required to prepare a semester paper on some special phase of the course in addition to the regular course work.

AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

Professors Evans, Armentrout, Clarke, Drake, Nesius, Nolan, and Toben; Associate Professors Barr and Sizer; Assistant Professors Jack, McIntosh, Nesselroad and Watts.

AGRICULTURAL ECONOMICS

Undergraduate Division

103. Agricultural Economics. I and II. 3 hr. PR: Econ. 1. Application of economic principles to agriculture and agri-business firms. Agriculture's place in the state and national economies and its position in the international sphere.

Credit is not given for both Agr. Econ. 103 and Econ. 2. Agr. Econ. 103 is prerequisite for upper-division courses in Agricultural Economics and the College of Commerce.

104. Farm Management. I. 3 hr. PR: Agr. Econ. 103. Types and systems of farming; considerations in starting farming; use of records in solving farm problems; land tenure and leases; production for family use.

110. Agri-business Accounting. I. 4 hr. Accounting for business managers who do not intend to become accountants. A brief coverage of terminology and methodology; decisions in accounting as directed by executives; interpretations and values from accounts and accounting statements. Visits to business firms required.

131. Marketing Agricultural Products. II. 3 hr. PR: Agr. Econ. 103. Market organization, market policies and practices and factors affecting the marketing of agricultural products. Tour of market agencies and facilities in Pittsburgh area required.

180. Assigned Topics. I and II. 1-4 hr. per sem.

200. Land Economics. II. 3 hr. Classification, development, tenure, use, conservation, valuation and taxation of rural, urban, mineral, forest, water, and recreational land resources.

206. Farm Planning. I. 3 hr. PR: Senior standing. Principal factors influencing returns on farms; planning use of labor, soil, crops, livestock, buildings and equipment. Farm visits required.

230. Cooperative Marketing. II. 2-3 hr. PR: Agr. Econ. 103. Principles and practices of cooperation as applied to marketing of agricultural products and purchasing of farm supplies. Offered in Spring of even years.

235. Marketing Dairy Products. II. 2 hr. PR: Agr. Econ. 103. Milk-marketing policies and practices, including federal milk-market orders. Offered in Spring of odd years.

240. Agricultural Prices. II. 3 hr. An analysis of the price-making forces which operate in the market places for the major agricultural commodities.

261. Agri-business Finance. I. 3 hr. Credit needs of agricultural businesses; financing of farm and market-agency firms; and organization and operation of credit agencies which finance agricultural business firms.

271. Agricultural Policy. II. 3 hr. An examination of the economic aspects of government price programs, production and marketing controls, subsidies, parity, export and import policies, and other programs affecting agriculture.

Graduate Division

320. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

340. Advanced Farm Management. I. 3 hr. PR: Agr. Econ. 206.

341. Production Economics. I. 3 hr. Economic principles of production with special application to agriculture.

342. Advanced Agricultural Economics. II. 3 hr.

380. Research. I and II. 1-6 hr. per sem.

RURAL SOCIOLOGY

Undergraduate Division

105. Sociology of Rural Life. II. 3 hr. Social aspects of rural living; characteristics of rural population, social structure, and institutional arrangements (family, community, education, religion, recreation, health, welfare, and local government).

224. Family and the Individual in the Community. I. 3 hr. PR: One course in the family, or Sociology, or consent. Social psychological analysis of the individual in the family and in other social systems. Involves the study of role relationships, community processes and attitudes and values as they affect the behavior of the individual.

Graduate Division

320. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

380. Research. I and II. 1-6 hr. per sem.

STATISTICS

Undergraduate Division

101. Statistical Concepts. II. 3 hr. An elementary course designed to thoroughly familiarize the student with the basic concepts of the distribution of a variable, sampling error, probability, and statistical inference. This course emphasizes the bases for statistical reasoning rather than the mechanics of a number of statistical techniques.

211. Statistical Methods. I. 3 hr. Statistical concepts and methods applied to data in biological and other fields. Measures of centrality and dispersion; normal distribution; population and sampling; estimation and tests of hypotheses concerning means and variances, analysis of variance, regression and correlation; enumeration statistics.

212. Advanced Statistical Methods. II. 3 hr. PR: Statistics 211 or equiv. Continuation of Statistics 211. Statistical concepts and methods. Analysis of variance with two or more variables; factorial comparisons; covariance analysis; multiple regression and correlation; and nonlinear regression.

Graduate Division

320. Special Topics. I, II, S. 2-4 hr. PR: Consent. Advanced study in such topics as analysis of non-orthogonal data, estimation of variance and covariance components, transformations for anormality of distribution, efficiency of experiments, and non-parametric methods of estimation.

AGRICULTURAL EDUCATION

Professor Butler; Associate Professor Harvey (Extension Education); Assistant Professors Kerwood and McGhee.

Undergraduate Division

118. Organizations and Clubs for Farm Boys. II. 2 hr. Problems involved in directing the activities of FFA and similar organizations.

134. Methods of Cooperative Extension. I. 2 hr. Activities of county cooperative extension agents and of the cooperative extension programs in West Virginia.

138. Extension Education Methods. II. 2 hr. Methods used in extension teaching and their underlying principles.

Ed. 160. Materials and Methods of High-School Teaching of Vocational Agriculture. I. 3 hr. Organization and preparation for teaching vocational agriculture in the high school.

180. Assigned Topics. I, II, S. 1-4 hr. per sem. PR: Adequate ability and training for the work proposed and permission to register.

Ed. 124. Student Teaching in Vocational Agriculture. I, II. 6 hr.

Ed. 276. Teaching Young and Adult Farmer Classes. I, S. 2 hr. PR: Ed. 100, 105, 106, or consent. Participation in conducting young and adult farmer classes and school-community food preservation centers; organization, course of study, methods of teaching and supervision of the classes, young farmer's associations, and adult farmers' organizations.

Ed. 277. Organization and Directing of Supervised Farming Programs. I, S. 2 hr. PR: Ed. 160 or consent. Planning programs of supervised farming, supervising and evaluating such programs for day, young farmer, and adult farmer students.

Graduate Division

239. Program Building in Cooperative Extension. II. 3 hr. PR: Agr. Educ. 134, 138, or consent. Rural organization in relation to program building. Leadership and group action. Overall working and educational objectives, principles, methods, and goals in developing county extension programs.

Ed. 318. Planning Programs and Courses for Vocational Agriculture Departments. S. 2 hr. PR: Ed. 160, 124. Gathering data, studying the farming problems and building programs of day students, young farmers, and adult farmers in and through the high school for the community.

320. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

350. Seminar. S. 1 hr.

360. Problem. I, II, S. 1-3 hr. (For the Master's Degree).

380. Research. I and II, S. 1-6 hr.

AGRICULTURAL ENGINEERING AND AGRICULTURAL MECHANICS

Professors Longhouse and Dickerson; Associate Professor Emerson; Assistant Professors Collins, Elliott, and Phillips.

Agricultural Engineering

Undergraduate Division

10. Principles of Agricultural Engineering. I. 3 hr. PR: Math. 4. A general course introducing the several fields of agricultural engineering and how they are applied to agriculture and industry. 3 hr. rec.

100. Farm Structures. II. 3 hr. PR: T.A.M. 102. Structural design and functional requirements of farm service buildings. 2 hr. rec., 3 hr. lab.

180. Assigned Topics. I, II. 1-4 hr. per sem.

190. Farm Machinery. II. 3 hr. PR: M.E. 201. Construction, operation, adjustment and testing of farm machines. 2 hr. rec., 3 hr. lab.

200. Seminar. I. 1 hr. PR: Senior standing.

210. Application of Electricity to Agriculture. II. 3 hr. PR: E.E. 205. Economic application of electric light, heat, and power. 2 hr. rec., 3 hr. lab. Offered in Spring of even years.

220. Agricultural Process Engineering. II. 3 hr. PR: C.E. 115, M.E. 121. Application of the fundamentals of engineering to agricultural engineering processes. 2 hr. rec., 3 hr. lab.

230. Farm Power. I. 4 hr. PR: M.E. 121. Fundamental theories underlying design and operation of internal combustion engines used in agriculture. 3 hr. rec., 3 hr. lab.

240. Applied Hydrology. I. 3 hr. PR: C.E. 115. The study of a hydrologic cycle with emphasis on precipitation and runoff as related to design of hydraulic structures, soil and water conservation, and flood control. 3 hr. rec.

250. Soil and Water Conservation. I. 3 hr. PR: C.E. 115. Engineering principles and practices in conservation, utilization, and management of soil and water resources. 2 hr. rec., 3 hr. lab. Offered in Fall of even years.

Graduate Division

320. Special Topics. I, II, S. 1-6 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

397. Research. I and II. 1-6 hr.

Agricultural Mechanics

Undergraduate Division

152. Farm Shop. I. 3 hr. PR: Math. 3. Construction and repair problems including carpentry, metal working, forging, fitting tools, and filing saws. Primarily for Vocational Agricultural teachers. 1 hr. rec. 6 hr. lab.

180. Assigned Topics. I, II, S. 1-4 hr. per sem.

252. Advanced Farm Mechanics. II. 3 hr. PR: Agr. Mech. 152. Forging, cold-iron work, tool fitting, woodworking. Offers training for teaching shop work in rural high schools. 1 hr. rec., 6 hr. lab.

253. Advanced Farm Machinery. II. 3 hr. PR: Agr. Eng. 10. Performance of agricultural equipment including calibration, efficiency, adjustments, and maintenance. Theoretical and practical aspects of selection based on economics, compatibility of machines with other equipment and the farming operation, service, and factors of custom operation. 2 hr. rec., 3 hr. lab.

254. Farm Maintenance and Construction Welding. II. 3 hr. PR: Agr. Eng. 10. Characteristics and properties of metals used in farm machinery and equipment. Machinery repair, including oxyacetylene cutting and welding. A.C. and D.C. electric. 1 hr. rec., 6 hr. lab.

259. Farm Structures. II. 3 hr. PR: Agr. Eng. 10. Fundamentals of construction, functional requirements, materials, new equipment, and use of laborsaving ideas and machinery. 2 hr. rec., 3 hr. lab.

270. Electricity in Agriculture. II. 3 hr. PR: Agr. Eng. 10. The study of the fundamentals of electrical energy and its application to lighting, power, heating, and control circuits used in agriculture. 2 hr. rec., 3 hr. lab.

275. Agricultural Engines. I. 3 hr. PR: Agr. Eng. 10. Relation of theory to design and operation of internal combustion engines with emphasis on care,

operation, and maintenance. Study covers one, two, three, four, six and eight cylinder engines, both in two and four stroke cycle designs. 2 hr. rec., 3 hr. lab.

Graduate Division

320. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

380. Research. I and II. 1-6 hr. per. sem.

AGRONOMY AND GENETICS

Professors Pohlman and Veatch; Associate Professors Johnson, Jung, Sarkissian, Ulrich, and van Eck; Assistant Professor Jencks.

AGRONOMY

Undergraduate Division

2. Principles of Soil Science. II. 3 hr. PR: Chem. 2. An introduction to soil science. 2 lec., 1 lab.

10. Forest Soils. I. 4 hr. PR: Chem. 1 and 2, Bot. 1, or Biol. 1 and 2. Introduction to soil science with particular emphasis on forest soils. 3 lec., 1 lab.

180. Assigned Topics. I, II. 1-4 hr. per sem.

210. Fertilizer and Soil Fertility. I. 3 hr. PR: Agron. 2 or 10. Soil properties in relation to fertility and productivity of soils; evaluation of soil fertility; production of fertilizers and their use in increasing the fertility and productivity of soils.

212. Soil Conservation and Management. II. 3 hr. PR: Agron. 210. Principles of soil and water conservation in relation to soil erosion control. Using soil technology to solve soil management problems relating to cropping systems. Offered in Spring of even years.

216. Soil Genesis and Classification. II. 3 hr. PR: Agron. 2 or 10. The classification and mapping of soils. Theory and practice in soil classification, soil mapping, and land judging. Offered in Spring of odd years.

230. Soil Physics. I. 3 hr. PR: Agron. 2 or 10. Physical properties of soils, water and air relationships and their influence on soil productivity. Offered in Fall of even years.

251. Weed Control. I. 3 hr. PR: Agr. 52, Agron. 2, or consent. Fundamental principles of wood control. Recommended control measures for and identification of common weeds.

252. Grain and Special Crops. II. 3 hr. PR: Agr. 52, Agron. 2, or consent. Advanced study of methods in the production of grain and special crops. Varieties, improvement, tillage, harvesting, storage and uses of crops grown for seed or special purposes. Offered in Spring of even years.

254. Pasture and Forage Crops. II. 4 hr. PR: Agr. 52, Agron. 2, or consent. All phases of pasture and forage crop production, including identification, seeding, management, use, seed production, and storage of forage crops. 3 lec., 1 lab.

Graduate Division

316. Soil Chemistry. I. 3 hr. PR: Consent. Fundamental chemical properties of soils in relation to plant growth; nature and properties of soil colloids; base

exchange and soil acidity; availability of plant food elements and soil-plant interrelationships. Offered in Fall of odd years.

320. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

350. Seminar. I, II. 1 hr. per sem. Recent literature pertaining to soil and crop production.

380. Research. I, II. 1-6 hr. per sem.

BACTERIOLOGY

314. Soil Microbiology. II. 4 hr. PR: Agron. 2 and Bact. 141. Occurrence of microorganisms in soils and their relationship to decomposition of organic matter, availability of plant nutrients, and soil acidity; technique of isolation and study.

GENETICS

Undergraduate Division

111. Elementary Genetics. I. 2 hr. PR: 4 hr. biological science. Elementary study of the principles of heredity. (For non-science majors only).

171. Principles of Genetics. II. 3 hr. PR: 8 hr. of biological science. The fundamentals of inheritance. Must be accompanied by Gen. 172.

172. Genetics Laboratory. II. 1 hr. PR: Gen. 221 or registration in Gen. 171.

180. Assigned Topics. I, II. 2-4 hr. PR: Gen. 171 or 221 and consent.

220. Crop Breeding. II. 3 hr. PR: Gen. 171 or 221. Methods and basic scientific principles involved in the improvement of leading cereal and forage crops through hybridization and selections. Offered in Spring of odd years.
Mr. Johnson

221. Basic Concepts of Modern Genetics. I. 3 hr. PR: 8 hr. of biological science and 1 year of chemistry. Independent inheritance, linkage. Chemical nature of genetic material. Control of phenotype by genetic material. Gene action and coding of genetic material.

224. Human Genetics. II. 3 hr. PR: Gen. 171 or 221 or consent. A study of the genetic system responsible for the development of phenotype in man. Offered in Spring of odd years.

Graduate Division

320. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

324. Cytogenetics. II. 3 hr. PR: Gen. 171 or 221 and Biol. 152 or 221 or consent. Cytogenetics of genomes and chromosome morphology and the evolution of these. Offered in Spring of even years.

326. Advanced Physiological Genetics. II. 3 hr. PR: Gen. 171 or 211 and Organic Chem. Physiological and biophysical concepts of genetic material. Structure and arrangement of genetic units. Nucleic acids as carriers of genetic information. Gene action and amino acid coding. Biochemical evolution of genetic material. Offered in Spring of odd years.

350. Seminar. I, II. 1 hr. per sem. Recent literature pertaining to breeding, genetics, and cytology.

380. Research. I, II. 1-6 hr. per sem.

ANIMAL INDUSTRY AND VETERINARY SCIENCE

Professors Anderson, Kidder, McLaren, Olson and Welch; Associate Professors Dozsa, Horvath, Hyre, Mitchell, Thomas, and Weese; Assistant Professors Ackerman, McBee, Reid, and Woodson; Instructors Boyles, Gay, and Smith.

ANIMAL INDUSTRY AND VETERINARY SCIENCE

Undergraduate Division

51. Principles of Animal Science. I. 4 hr. A comparative study of the production of meat, milk, eggs, and wool. Nutrition, physiology, genetics, hygiene, physical environment, and economics are discussed as bases for sound managerial decisions.

180. Assigned Topics. I, II. 1-4 hr. per sem.

195. Seminar. II. 1 hr. Senior seminar.

Graduate Division

320. Special Topics. I, II, S. 1-4 hr. (1 hr. credit in special cases only). Advanced study in particular phases of such animal industry topics as animal production, nutrition, physiology, breeding and genetics, veterinary science, and food science. (For the Master's degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

370. Methods of Animal Research. I. 3 hr. Design, experimental procedures, and analyses used in research in the several areas of animal industry. Offered in Fall of odd years.

ANIMAL BREEDING AND GENETICS

Undergraduate Division

212. Breeding and Incubation: Principles and Practices. I. 3 hr. (1 lab.). PR: Gen. 221 or consent. Study of methods available for improving and reproducing meat and egg quality. Offered in Fall of even years.

226. Breeding of Farm Animals. II. 3 hr. PR: Gen. 221 or consent. The application of principles of quantitative population genetics to the improvement of farm animals.

Graduate Division

326. Advanced Animal Selection. II. 3 hr. PR: Stat. 212 and Gen. 221 or equiv. An advanced course dealing with the basic concepts of experimental and statistical approaches in the analysis of quantitative inheritance with special reference to the magnitude and nature of genotypic and non-genotypic variability. Offered in Spring of even years.

350. Seminar. I, II. hr.

380. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

ANIMAL NUTRITION

Undergraduate Division

101. Animal Nutrition. I. 3 hr. Digestion and metabolism of food nutrients, nutrient requirements of farm animals, and nutritive values of feeds and rations.

295. Principles of Nutrition and Metabolism. I. 3 hr. PR: Agr. Biochem. 101, An. Physiol. 100, or equiv. A basic course in animal nutrition.

296. Principles of Nutrition and Metabolism. II. 3 hr. PR: An. Nutr. 295. A continuation of An. Nutr. 295. A basic course in animal nutrition.

297. Nutrition Laboratory Methods. I. 2 hr. PR: An. Nutr. 295 or concurrent registration in Agr. Biochem. 103. Quantitative chemical, physical, and microbiological methods used in animal nutrition research. Offered in Fall of even years.

298. Nutrition Laboratory Methods, Animal Techniques. II. 2 hr. PR: An. Nutr. 297. Laboratory experiments in sampling, digestibility determinations, nutritional balance studies, bioassay, and experimental surgery. Offered in Spring of odd years.

Graduate Division

308. Advanced Nutrition and Metabolism. II. 3 hr. PR: An. Nutr. 296 or consent. Advanced treatment of the nutrition, metabolism, nutrient interrelationship and metabolic regulatory mechanisms of domestic animals. Offered in Spring of odd years.

310. Nutrition and Physiology of the Ruminant. II. 3 hr. PR: Physiol. 100; An. Nutr. 101; Agr. Biochem. 290. A study of the nutrition and physiological processes peculiar to the ruminant animal. Offered in Spring of even years.

311. Problems In Nutritional Physiology. I. 3 hr. PR: An. Nutr. 296 or consent. Consideration of the interrelation of nutrition with growth, reproduction, environment, disease and related areas. Offered in Fall of odd years.

350. Seminar. I, II. 1 hr.

380. Research. I, II, S. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

ANIMAL PHYSIOLOGY

Undergraduate Division

100. Introduction to the Physiology of Domestic Animals. I. 3 hr. PR: Zool. 2; Chem. 131 (concurrent), or consent. The function and regulation of the principal systems of the animal body.

225. Reproduction of Farm Animals. II. 3 hr. PR: Zool. 2 or consent. The anatomy and physiology of reproduction in farm animals.

227. Milk Secretion. II. 3 hr. (1 lab.). PR: Chem. 131; An. Physiol. 225. The evolution, anatomy, and growth of the mammary gland. The chemical, hormonal, physiological and environmental factors affecting lactation. Offered in Spring of odd years.

Graduate Division

350. Seminar. I, II. 1 hr.

380. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

NOTE: Students are also referred to Psych. 201, Physiological Psychology; Zool. 171, Human Physiology; Zool. 273, 274, Cellular Physiology; and Zool. 276, Comparative Physiology.

ANIMAL PRODUCTION

Undergraduate Division

103. Poultry Feeding and Management. II. 3 hr. Factors in poultry production, feeding, and management as related to scientific investigations. Offered in Spring of even years.

108, 109, 110. Poultry Plant Experience. I, II, S. 1 hr. (3 hr. lab.). Experience in operating a poultry breeding farm, including trapnesting, incubation, and pedigreeing. A report will be required.

*123. Dairy Cattle History and Selection. II. 3 hr. (2 labs.). To familiarize the student with the history, development and programs of the breeds of dairy cattle as well as the modern concepts in phenotypic evaluation.

*138. Grading and Selection. II. 2 hr. (2 labs.). A study of the art of visual evaluation of live meat animals and the evaluation of scientific techniques used in selecting breeding stock and evaluating carcass merit.

*141. Beef Production. I. 3 hr. (1 lab.). Physiological and economical bases of beef production.

*142. Pork Production. II. 3 hr. (1 lab.). Physiological and economical bases of pork production. Offered in Spring of even years.

*143. Advanced Judging. I. 2 hr. (2 labs.). Evaluation of breeding merit and potential carcass characteristics of representative examples of sheep, swine and beef cattle. Students taking this course will be required to participate in tours of representative flocks and herds.

162. Sheep Production. II. 3 hr. (1 lab.). Physiological and economical bases of sheep production. Offered in Spring of odd years.

201. Advanced Poultry Production. I. 3 hr. PR: An. Prod. 103 or An. Nutr. 101. Special phases of broiler and egg production, disease control, laborsaving studies, recent designs in building and heating equipment for all types of poultry. Offered in Fall of even years.

*222. Milk Production. II. 4 hr. (1 lab.). Feeding and management of dairy cattle.

223. Advanced Livestock Production. I. 3 hr. (1 lab.). PR: An. Nutr. 101 and consent. Phases of beef production involving problem work in specialized commercial and purebred fields, including processing.

224. Advanced Livestock Production. II. 3 hr. (1 lab.). PR: An. Nutr. 101 and consent. Special studies in wool and market-lamb production and processing. Offered in Spring of even years.

Graduate Division

330. Advanced Milk Production. II. 3 hr. PR: An. Nutr. 101 or consent. Advanced study of the feeding, breeding, and management of dairy cattle. Offered in Spring of odd years.

350. Seminar. I, II. 1 hr.

380. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

*Transportation for required trips in connection with these courses will generally be supplied by the College. Students will be responsible for their meals and lodging.

FOOD SCIENCE

Undergraduate Division

12. Dairy Technology. II. 3 hr. (1 lab.). Introductory. Composition and properties of milk and milk products; butterfat testing; manufacture of dairy products. Offered in Spring of odd years.

106. Preparation and Grading of Eggs and Poultry for Market. I. 2 hr. (1 lab.). Latest methods in killing, dressing, and grading poultry. Grading, storing, and processing eggs for market. Offered in Fall of odd years.

107. Milk and Public Health. I. 3 hr. (1 lab.). Food value of milk and its production and processing in relation to public health. Offered in Fall of odd years.

124. Judging Dairy Products. II. 2 hr. (2 labs.). A laboratory course in evaluating and judging dairy products.

166. Meats. II. 2 hr. (1 lab.). Lectures and demonstrations in identification, selection, and nutritive value of meat cuts. Primarily for home economics students. Offered in Spring of even years.

*167. Meats. I. 3 hr. (2 labs.). Processing, curing, and care of meats. Visit to one of the large packing houses of Pittsburgh required.

*169. Meat Judging. I. 2 hr. (2 labs.). Tour of representative packing plants required.

*202. Advanced Meats. II. 3 hr. (2 labs.). PR: Food Sci. 167. Studies covering composition of meat, complete fabrication of meat animal carcasses, factors influencing yield, physiology and chemistry of pertinent phenomena, and merchandising of meat. Offered in Spring of even years.

230. Market Milk Products and Frozen Desserts. I. 4 hr. (1 lab.). The assembling, processing, packaging, storing and merchandising of dairy products. (Does not carry graduate credit for a student majoring in Dairy Foods.) Offered in Fall of even years.

231. Butter, Cheese and Concentrated Milk Products. II. 3 hr. (1 lab.). Manufacture of butter, concentrated milk products, and various types of cheeses. (Does not carry graduate credit for students majoring in Dairy Foods.) Offered in Spring of even years.

232. Advanced Dairy Technology. II. 4 hr. (2 labs.). Study of the effect of major milk constituents on properties of dairy products and study of analytical methods used in quality and composition control of dairy products. Offered in Spring of odd years.

Graduate Division

312. Critical Evaluation of Recent Research and Developments in Dairy Foods. I. 4 hr. (2 labs.). Consent. Normally a minimum of Bact. 246 and at least one Dairy Foods course will be required. Methods, results and impact of recent research and developments pertaining to dairy food industry. Offered in Fall of even years.

350. Seminar. I, II. 1 hr.

380. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

VETERINARY SCIENCE

Undergraduate Division

102. Animal Pathology. I. 3 hr. Diseases of domestic animals, with special emphasis on the common diseases.

206. Parasites and Pathology. II. 3 hr. PR: Zool. 2 or equiv. Common parasites of farm animals, their control, and their effect upon the host. Offered in Spring of odd years.

Graduate Division

350. Seminar. I, II. 1 hr.

380. Research. I, II. 1-6 hr. per sem. For graduate students working on a problem in preparation of a thesis.

HORTICULTURE

Professors Scott, Childs, Marsh, Neal, and Schubert; Associate Professors Dye, Fortney, and Steyers; Assistant Professor Ingle.

Undergraduate Division

107. General Horticulture. I. 3 hr. PR: Biol. 1, Bot. 1, Agr. 52, or consent. Introduction to the principles underlying present day horticultural practice with special emphasis on how basic discoveries in plant science have been applied in horticulture.

115. Judging and Identification of Apple Varieties. I. 1 hr. Two laboratory periods first half of semester. Identification and judging of apple varieties.

116. Flower Judging. II. 1 hr. One laboratory period per week. Identification and judging of flowers with emphasis on the aesthetic values which underlie desirability in a variety.

117. Vegetable Identification and Judging. I. 1 hr. Identification and judging the common vegetables and the pests associated with olericulture in West Virginia. Emphasis is placed on the cultural practices associated with top quality vegetables.

129. History and Appreciation of Landscape Design. II. 3 hr. An introduction to history and theory of landscape design.

140. Woody Plant Materials. II. 3 hr. Trees, shrubs, and vines; their identification, culture, and use. Offered in Spring of even years.

141. Greenhouse Management. II. 3 hr. A practical study of greenhouses.

151. Floral Design. I. 3 hr. PR: Hort. 141 or consent. A basic course in flower arrangement to cover all occasions for the home and retail flower shop.

180. Assigned Topics. I, II, S. 1-4 hr. per sem. Limit of 6 hr. credit.

204. Plant Propagation. II. 3 hr. A study of the practices of plant propagation and the factors involved in reproduction in plants.

208. Application of Sprays, Dusts, and Fumigants. II. 2 hr. PR: Entom. 202 or Pl. Path. 103 and Hort. 107, or 229 (1 lec., 1 lab.). Training in the use of machinery and materials in the application of fungicides, insecticides, hormones, and plant nutrients to horticultural crops. Development and interpretation of spray schedules.

229. Landscape Design. I. 3 hr. (1 lec., 1 scheduled lab., 1 arranged lab.). A course in ornamental horticulture giving an appreciation of the basic principles of design and information pertaining to the use and care of ornamental plants around the home.

240. Horticulture Theory and Procedure I—Tree-Fruits and Small-Fruits. I. 4 hr. (two 2-hr. lectures). PR: Agr. 52, Hort. 107, or consent. A study of the principles and operations involved in the production of fruits.

241. Horticulture Theory and Procedure II—Vegetables and Handling and Storage. II. 4 hr. (two 2-hr. lectures). PR: Agr. 52, Hort. 107, or consent. Principles of vegetable production. Physiology, handling, and storage of perishable horticultural commodities.

Graduate Division

320. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

380. Research. I, II, S. 1-6 hr. per sem. (Maximum credit, 6 hr.).

PLANT PATHOLOGY, BACTERIOLOGY, AND ENTOMOLOGY

Professors Barnett, Dorsey, Gallegly, Leach, Lilly, True, and Wilson; Associate Professors Adams, and Elliott; Assistant Professors Koburger and Neel.

BACTERIOLOGY

Undergraduate Division

141. General Bacteriology. I, II. 4 hr. PR: Chem. 1, 2. Introductory, morphological, cultural, and physiological characteristics of bacteria; application of bacteriology to agriculture, home economics, sanitation, and health.

180. Assigned Topics. I, II, S. 1-4 hr. per sem.

246. Dairy Bacteriology. I. 4 hr. PR: Bact. 141. Microorganisms in market milk, in manufacture of butter, cheese, and fermented milk, and in milk hygiene; practice in preparation of media; making bacterial counts in milk. Offered in Fall of even years.

248. Sanitary Bacteriology. I. 3 hr. PR: Bact. 141. Standard bacteriological methods used in routine examination of water and sewage. Offered in Fall of odd years.

Graduate Division

314. Soil Microbiology. II. 4 hr. PR: Bact. 141 and organic chemistry. Occurrence and distribution of microorganisms in soils and their interrelationships. Their role in decomposition of organic matter and other transformations of soil constituents. Offered in Spring of odd years.

320. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

350. Seminar. I, II. 1 hr. per sem.

380. Research. I, II, S. 1-6 hr. per sem.

ENTOMOLOGY

Undergraduate Division

152. Forest Entomology. II. 3 hr. PR: Forestry 112. Relationships between insects and the forest; recognition and control of important species. This course is primarily designed for forestry students.

180. Assigned Topics. I, II. 1-4 hr. PR: Entom. 202 or equiv. Special studies in insect ecology, life-histories, macro- and micro-anatomy, taxonomy, physiology, and control methods.

202. Agricultural Entomology. II. 4 hr. PR: Zool. 1, 2. A course dealing with the basic aspects of insect life, emphasizing the study of economically important insects and their control. Designed to meet the needs of students in agriculture. Does not carry graduate credit for majors in Entomology.

203. Economic Entomology. II. 3 hr. PR: Entom. 202. Evaluation of insect control problems; study of surveys and control methods; equipment; insecticides. Offered in Spring of odd years.

Graduate Division

313. Insect Transmission of Plant Diseases. I. 3 hr. PR: Pl. Path. 153, 201 or Entom. 202. Role of insects in spread and development of plant diseases. Offered in Fall of odd years.

320. Special Topics. I, II, S. 2-6 hr. PR: Entom. 202. Advanced study of entomological topics of special interest to the student.

350. Seminar. I, II. 1 hr. per sem.

380. Research. I, II, S. 1-6 hr.

PLANT PATHOLOGY

Undergraduate Division

153. Forest Pathology. I. 4 hr. PR: Biol. 2, For. 112. Important diseases of forest and shade trees. Causes and methods of control.

180. Assigned Topics. I, II. 1-4 hr. per sem.

201. General Plant Pathology. I. 4 hr. PR: Bact. 141. Nature and causes of plant diseases; methods of control.

202. Principles of Plant Pathology. II. 4 hr. PR: Bact. 141 and either Plant Path. 153, 201, or 203, or consent. Primarily for graduate students and seniors majoring in botany, biology, or agricultural science. Nature of diseases in plants with practice in laboratory methods. Offered in Spring of even years.

203. Mycology. I. 4 hr. Lectures, field and laboratory studies of parasitic and saprophytic fungi.

204. Diseases of Fruit Crops. I. 2 hr. PR: Pl. Path. 201. The important diseases of commercial fruits. Causes and methods of control. Offered in Fall of odd years.

205. Diseases of Ornamentals. II. 2 hr. PR: Pl. Path. 153 or 201. The important diseases of ornamentals. Causes and methods of control. Offered in Spring of even years.

206. Diseases of Vegetable Crops. II. 2 hr. PR: Pl. Path. 201. The important diseases of potatoes and vegetable crops. Causes and methods of control. Offered in Spring of odd years.

207. Diseases of Field and Forage Crops. II. 2 hr. PR: Pl. Path. 201. The important diseases of cereals, legumes, and grasses. Causes and methods of control. Offered in Spring of odd years.

208. Application of Sprays, Dusts, and Fumigants. II. 2 hr. PR: Entom. 202 or Pl. Path. 201 and Hort 229, or its equiv. One lecture and one laboratory. Training in the use of machinery and materials in the application

of fungicides, insecticides, herbicides, hormones, and plant nutrients to horticultural crops. Also the development and interpretation of spray schedules.

209. Nematology. I. 3 hr. PR: Pl. Path. 201 or consent. Primarily for graduate students majoring in the agricultural sciences, zoology or botany. Nematode taxonomy, bionomics, and control, with particular emphasis on plant parasitic forms. Offered in Fall of even years.

Graduate Division

313. Insect Transmission of Plant Diseases. I. 3 hr. PR: Pl. Path. 153, 201, or Entom. 202. Role of insects in spread and development of plant disease. Offered in Fall of odd years.

315. Advanced Forest Pathology. II. 3 hr. PR: Pl. Path. 203 and either Pl. Path. 153 or Pl. Path. 201. Principles, substance, and application of our knowledge of tree diseases and decays, especially as they may be related to forest management practices. Offered in Spring of even years.

320, 321, 322, 323. Special Topics. I, II, S. 2-4 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

330. Physiology of the Fungi. II. 4 hr. PR: Organic chemistry, mycology, and bacteriology, or consent. Physiological aspects of growth, reproduction, and parasitism of fungi, with emphasis on nutrition, environment, and other biotic factors.

340. Taxonomy of the Fungi. I. 3 hr. PR: Pl. Path. 203. Collection and identification of fungi, with emphasis upon those of economic importance. Offered in Fall of even years.

350. Seminar. I, II. 1 hr. per sem.

380. Research. I, II, S. 1-6 hr.

The Division of Forestry

GENERAL INFORMATION

ORGANIZATION AND PURPOSE

In its Division of Forestry, West Virginia University offers four curriculum options of four years each, three leading to the degree of Bachelor of Science in Forestry and one leading to the degree of Bachelor of Science in Wood Science. A student may major in forest management, wildlife management, wood science, or wood industry.

The field of forestry is a broad one. Those who enter it must receive an education of a breadth equal to that of the profession which they expect to make their life work. The professional forester's work includes such diversified activities as timber production, logging, surveying, timber estimating, park management, forest protection, forest-stand improvement, flood control, watershed protection, soil erosion control, submarginal land development, restoration of game, forest-range management, stream development, lumber dry-kiln operation, plywood and furniture manufacture, timber preservation, and construction of public camps and summer homesites.

The wide scope of the modern field of forestry demands a thorough basic training for the professional forester. This accounts for the large number of required courses in the professional forestry curricula. If a forester wishes to specialize in any one branch of the field, graduate work is needed.

The curriculum options in forest management, wildlife and fish management, and wood industries include a two-years' broad foundational study of the natural and social sciences basic to the field of forestry. This is followed in the junior and senior years by a more detailed study of principles and techniques. Many of the courses provide field laboratories, enabling the student to see first-hand application of the principles presented in the classroom and to experiment with the various techniques he is learning.

In addition to the forest work which forms a part of the regular courses on the main campus at Morgantown and the summer Forestry Camp, students in forest management, wildlife and fish management, and wood industries are expected to devote the summer after their junior year to employment with a forestry unit or wood-using industry. This gives further experience which is valuable in connection with their fourth-year studies, as well as in obtaining permanent employment after graduation.

Many opportunities for summer employment are arranged through the Division of Forestry with the United States Forest Service and with private forest industries which are members of the National Lumber Manufacturers Association. The remunerations for such temporary undergraduate employment varies from about $250 to $325 per month.

FACILITIES FOR INSTRUCTION

The Division of Forestry of West Virginia University is one of twenty-seven forestry schools in the country which are fully accredited by the Society of American Foresters. Situated in Morgantown, it is favorably located in relation to forests available for educational and research use.

Coopers Rock State Forest, an area of 13,000 acres fronting on Cheat Lake, is less than 10 miles from the main campus. The Division of Forestry has a 99-year lease on 7,500 acres of this Forest. The tract, now known as the West Virginia University Forest, is managed by the Division and is used for teaching, research and demonstration purposes. The Monongahela National Forest lies within 45 miles of Morgantown. The University Farm Woods, 100 acres bearing mature timber, is within two miles. Acquisition of the 500-acre Tygart Valley Forest at Dailey has increased the educational and research facilities of the Division. These forests are utilized by forestry students for study during their four years of training.

During 1951, an agreement was completed between West Virginia University and the Island Creek Coal Company. This agreement made the 3,000-acre Island

Creek Experimental Forest available for research in applied forestry. The Division of Forestry maintains a resident forester at Holden who is in charge of the research forest in nearby Mingo County. Methods of forest production on a commercial basis, suited to the forest types and topography of southern West Virginia, are being studied. The experimental work is open to inspection by forestry students.

A lumber dry kiln, portable sawmill, and experimental wood-treating plant are owned by the Division of Forestry.

The dry kiln is of compartment type, cross circulating, steam heated, with automatic self-recording temperature and humidity controls. It has a capacity of approximately five thousand board feet of lumber per charge, and provides properly kiln-dried lumber for University use. It provides for student experience in dry kiln operation.

The portable sawmill is of standard type, and may be adapted to permanent, portable, or mobile use. It is driven by a 75-horsepower diesel engine. A truck-tractor and semi-trailer are used in transporting the mill and in hauling logs and lumber. The unit is used for training in mill installation, adjustment, and operation. Students participate in logging and sawmilling operations conducted under conditions similar to ordinary small industrial operations.

The experimental wood-treating plant is outstanding in its facilities for duplicating any of the commercial methods of pressure-treating wood. A recording instrument keeps a time, pressure, vacuum, and temperature record of each treating operation. In addition, indicating vacuum pressure and temperature gauges are installed, including a mercury-vacuum gauge. The equipment was designed especially for West Virginia University, to be used in laboratory instruction and research.

The facilities of the Division of Forestry also include a woodworking shop, plywood testing machine, and experimental plywood hot presses. A complete collection of samples of commercial woods of the United States is maintained for study.

The wood science laboratory is equipped with microscopes, a microtome for preparing wood sections used in identification, wood moisture meters, and a portable precision potentiometer. An experimental electrically-heated, condenser-type dry kiln with automatic temperature and humidity controls is used for practice, in addition to the five thousand-board foot steam-heated dry kiln.

The forestry library has been developed primarily for student use. It contains more than 20,000 catalogued books and bulletins covering the field of forestry. All periodicals of interest to the forester may be readily found. Student organizations are decorating the library with pictures and trophies, creating interesting and pleasant surroundings for study.

Camp Wood

The Forestry Camp is held each summer for students who have completed their sophomore year of the forest management, wildlife and fish management, or wood industries option. The camp is situated near Alvon, about 12 miles north of White Sulphur Springs, on the southern end of the Monongahela National Forest in Greenbrier County. This location offers a great variety of forest types, conditions, activities, and industries.

The program of instruction provides training and practical experience in land surveying, timber estimating, forest management, wildlife management, and wood utilization. A logging operation is carried out by the students on the Meadow Creek Management Area. This is a tract of mature oak and pine timber which has been reserved by the United States Forest Service for this purpose. A considerable area of timber near the camp has been reserved by private owners for mensuration studies. The camp program culminates in a one-week trip into the southern pine region, where silvicultural operations and wood-using industries are studied.

For resident students the cost is $8 per credit hour; for nonresidents, tuition is $28 per credit hour. Food and lodging at camp costs $144 plus tax. The Student Union Building Fee is $2. These must be paid to the University Comptroller at the time of registration. Other fees include insurance, approximately $3.15 for 10 weeks (required only if the student has no University insurance), and $10 for

lodging on the southern trip. Other expenses for scheduled trips from camp usually total about $25. All University fees are subject to change without notice.

REQUIREMENTS FOR THE DEGREE

The Division of Forestry offers three curriculum options leading to the degree of Bachelor of Science in Forestry. The first year of work is the same in all three curricula. The option in wood science leads to the degree of Bachelor of Science in Wood Science (B.S.W.S.).

The elective hours specified in each curriculum option not only permit the student to meet University Core Curriculum requirements, but provide an opportunity to select general electives to complete a well-rounded course of study.

FOREST MANAGEMENT

The forest management option offers a strong basic course in Forestry leading particularly to employment in the management of forest land. It is designed to train the student for a professional forestry career in either public or private forestry.

Graduates are prepared to hold positions with the various state forestry and conservation departments, the U. S. Forest Service, the Forestry Division of the U. S. Indian Service, the Soil Conservation Service, and the other federal and state agencies employing professional foresters. They may also be employed by private forest land owners—both corporate and individual—or may enter business as consulting foresters. This option provides a good background for graduate work in all phases of forest production management.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Bot. 1—General	4	Zool. 2—General	4
Chem. 1—General	4	Chem. 2—General	4
English 1—Composition	3	English 2—Composition	3
For. 1—Profession	1	For. 2—Profession	1
For. 3—Convocation	0	For. 4—Convocation	0
Math. 2—Algebra	3	Math. 4—Plane Trigonometry	3
Mil. Sci. or Air Sci. 1	2	Mil. Sci. or Air Sci. 2	2
Phys. Educ. 1—General Program	1	Phys. Educ. 2—General Program	1
	18		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Agron. 10—Forest Soils	3	Bot. 171—Plant Physiology	3
Bot. 61—Systematic	2	C. E. 6—Topographic Mapping	2
Bot. 67—Dendrology	4	Econ. 2—Principles	3
C. E. 5—Land Surveying	4	For. 6—Convocation	0
Econ. 1—Principles	3	For. 11—Silvics	3
For. 5—Convocation	0	For. 21—Mensuration	4
Mil. Sci. or Air Sci. 3	2	Mil. Sci. or Air Sci. 4	2
	18		17

SUMMER PRECEDING THIRD YEAR

10 Weeks, 10 Hours Credit

For. 106—Forest Surveying and Mensuration Field Practice	5
For. 107—Forest Management, Utilization, and Wildlife Practices	5
	10

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 112—Silvicultural Systems	3	For. 113—Seeding and Planting	3
For. 131—Wood Identification	3	For. 114—Forest Economics	3
For. 151—Protection	2	For. 125—Policy and Admin.	3
Physics 1—Introductory	4	For. 136—Wood Processes and Products	3
Electives	5	Electives	5
	17		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 116—Regional Silviculture	2	For. 126—Forest Measurement by Aerial Photographs	2
For. 123—Management	4	For. 141—Wildlife Management	3
For. 124—Forest Finance	3	Entomol. 152—Forest Entomology	3
Pl. Path. 153—Forest Pathology	3	Electives	9
Electives	6		
	18		17

WILDLIFE AND FISH MANAGEMENT

The wildlife and fish management option is designed to give basic undergraduate training in wildlife and fisheries biology. Students who elect this option will satisfy the requirement for graduation by completing successfully 150 credit hours, including all the required courses listed below, and elective courses in botany, zoology, bacteriology, and other related fields. Those completing the curriculum are granted the degree of Bachelor of Science in Forestry.

Many wildlife and fisheries biology positions require the Master's Degree, and majors in this curriculum are encouraged to enroll for graduate work in other institutions. Graduates in wildlife management will, however, meet all requirements for taking the U. S. Civil Service examination for biologist, and will ordinarily meet all requirements for the entering examination in general forestry.

Students in wildlife management will be advised to include among their electives, Zool. 224, Limnology; Zool. 263, Ichthyology; Zool. 264, Fishery Biology; Zool. 365, Ornithology; Bot. 221, Plant Ecology; Zool. 251, Invertebrate Zoology; Zool. 205, Principles of Evolution; Ag. 254, Pasture and Forage Crop; Genetics 171-172; and Statistics 101 and 211.

Students wishing to be qualified as fishery biologists may substitute Zool. 251, 224, 263, and 264 for the Zoology courses.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Bot. 1—General	4	Zool. 2—General	4
Chem. 1—General	4	Chem. 2—General	4
English 1—Composition	3	English 2—Composition	3
For. 1—Profession	1	For. 2—Profession	1
For. 3—Convocation	0	For. 4—Convocation	0
Math. 2—Algebra	3	Math. 4—Plane Trigonometry	3
Mil. Sci. or Air Sci. 1	2	Mil. Sci. or Air Sci. 2	2
Phys. Educ. 1—General Program	1	Phys. Educ. 2—General Program	1
	18		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Agron. 10—Forest Soils	3	Bot. 171—Plant Physiology	3
Bot. 67—Dendrology	4	C. E. 6—Topographic Mapping	2
C. E. 1—Surveying	2	For. 6—Convocation	0
Econ. 1—Principles	3	For. 11—Silvics	3
For. 5—Convocation	0	For. 21—Mensuration	4
Mil. Sci. or Air Sci. 3	2	Mil. Sci. or Air Sci. 4	2
Electives	4	Electives	4
	18		18

SUMMER PRECEDING THIRD YEAR

10 Weeks, 10 Credit Hours

For. 106—Forest Surveying and Mensuration Field Practice	5
For. 107—Forest Management, Utilization, and Wildlife Practices	5
	10

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 112—Silvicultural Systems	3	For. 113—Seeding and Planting	3
For. 131—Wood Identification	3	For. 114—Forest Economics	3
For. 151—Protection	2	For. 125—Policy and Admin.	3
Zool. 250—Animal Systematics	2	For. 136—Wood Processes and Products	3
Physics 1—Introductory	4	Electives	6
Electives	3-4		
	17-18		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 123—Management	4	For. 144—Forest Zoology	3
Bot. 161—Systematics	4	For. 145—Life Histories of Game Animals	3
Zool. 231—Comparative Anatomy *or* Zool. 271—Vertebrate Physiology	5 4	For. 126—Forest Measurement by Aerial Photographs	2
Electives	3	Entomol. 152—Forest Entomology	3
		For. 141—Wildlife Management	3
		Electives	3
	15-16		17

WOOD INDUSTRY

The four-year Wood Industry option leads to the degree of Bachelor of Science in Forestry and is designed to develop foresters for work with wood-using industries. The wood-using industry includes basic lumber, veneer, paper, and allied products, and ranks fourth in the nation in the number of wage earners employed.

This option also requires sufficient undergraduate courses in the College of Commerce to enable qualified students to earn an M.S. or M.B.A. degree in that college after an additional year of study at the graduate level. A student with undergraduate training in Wood Industry, followed by graduate training in business administration or economics, will be in demand for managerial positions in the wood-using industries.

Students in the Wood Industry option who do not qualify for graduate work may earn a second undergraduate degree in the College of Commerce in one year by completing a minimum of 30 semester hours which include the basic commerce courses.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Bot. 1—General	4	Chem. 2—General	4
Chem. 1—General	4	English 2—Composition	3
English 1—Composition	3	For. 2—Profession	1
For. 1—Profession	1	For. 4—Convocation	0
For. 3—Convocation	0	Math. 4—Plane Trigonometry	3
Math. 2—Algebra	3	Mil. Sci. or Air Sci. 2	2
Mil. Sci. or Air Sci. 1	2	Phys. Educ. 2—General Program	1
Phys. Educ. 1—General Program	1	Electives	4
	18		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Acctg. 1—Prin. of Accounting	3	Acctg. 2—Prin. of Accounting	3
Bot. 67—Dendrology	4	Econ. 2—Principles	3
C. E. 1—Surveying	2	For. 6—Convocation	0
Econ. 1—Principles	3	For. 11—Silvics	3
For. 5—Convocation	0	For. 21—Mensuration	4
Mil. Sci. or Air Sci. 3	2	Mil. Sci. or Air Sci. 4	2
Electives	4	Electives	3
	18		18

SUMMER PRECEDING THIRD YEAR

10 Weeks, 10 Credit Hours

For. 106—Forest Surveying and Mensuration Field Practice	5
For. 107—Forest Management, Utilization, and Wildlife Practices	5
	10

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 112—Silvicultural Systems	3	For. 114—Forest Economics	3
For. 131—Wood Identification	3	For. 136—Wood Processes and Products	3
For. 151—Protection	2	Entomol. 152—Forest Entomology	3
Physics 1—Introductory	4	Management 111—Industrial Mgmt.	3
Electives*	6	Electives	6
	18		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Bus. Ad. 111—Business Law	3	Econ. 125—Statistics	3
For. 123—Management	4	For. 135—Seasoning and Preservation	4
For. 124—Finance *or* Fin. 111—Business Finance	3	For. 137—Grading Wood Products	3
For. 132—Properties of Wood	3	For. 138—Advanced Lumbering	3
Pl. Path. 153—Forest Pathology	3	Markt. 111—Prin. of Marketing	3
	16		16

*Econ. 111 should be elected by students planning graduate work in economics.

WOOD SCIENCE

The option in wood science is intended to prepare students to pursue graduate work in the technical phases of wood use or to enter directly into positions dealing with the conversions of forest crops into useful products. Such positions may be either governmental or industrial, with both groups further divided into various degrees of administrative, research, or developmental effort.

Students electing to enter the field of wood science should demonstrate a marked facility in mathematics, physics, and chemistry, since these basic sciences form the foundation for a large part of the knowledge involved in the properties and processing of wood.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Bot. 1—General	4	Bot. 171—Plant Physiology	3
English 1—Composition	3	C. E. 1—Surveying	2
For. 1—Profession	1	English 2—Composition	3
For. 3—Convocation	0	For. 2—Profession	1
Math. 15—Anal. Geom. and Calculus	4	For. 4—Convocation	0
(Math 14—Supplement to Math 15, if needed)	(2)	Math. 116—Anal. Geom. and Calculus	4
Mil. Sci. or Air Sci. 1	2	Mil. Sci. or Air Sci. 2	2
Phys. Educ. 1—General Program	1	Phys. Educ. 2—General Program	1
	15 (17)		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Bot. 67—Dendrology	4	Chem. 2—General	4
Chem. 1—General	4	For. 6—Convocation	0
For. 5—Convocation	0	For. 21—Mensuration	4
Math. 117—Calculus	4	Mil. Sci. or Air Sci. 4	2
Mil. Sci. or Air Sci. 3	2	Physics 112—General	5
Physics 111—General	5	T.A.M. 101—Statics	3
	19		18

SUMMER PRECEDING THIRD YEAR

A minimum of 10 weeks of summer employment with a forest products laboratory, wood-using industry, or related facility, will be required.

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 233—Organic	4	Chem. 260—Physical	3
Econ. 1—Principles	3	For. 11—Silvics	3
For. 131—Wood Identification	3	For. 114—Forest Economics	3
Speech 11—Public Speaking	3	For. 136—Wood Processes and Products	3
T.A.M. 102—Mechanics of Materials	3	Electives	6
Electives	2		
	18		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 132—Properties of Wood	3	For. 135—Seasoning and Preservation	4
Restricted Electives*	11	Restricted Electives*	7
Core or General Electives	4	Core or General Electives	7
	18		18

*Restricted Electives: Eighteen credit hours must be taken from among the following list of courses in: agriculture, biology, botany, chemistry, engineering, forestry, languages, mathematics, and physics.

LIST OF APPROVED RESTRICTED ELECTIVES FOR WOOD SCIENCE CURRICULUM

AGRICULTURE: Statistics 211 and 212, 3 hr.; Gen. 221, 3 hr.; Plant Path. 153, 4 hr.

BOTANY AND BIOLOGY: Bot. 221, 4 hr.; Biol. 211, 3 hr.

CHEMISTRY: Chem. 5 or 105, 4 hr.; Chem. 6 or 106, 4-5 hr.; Chem. 15 or 115, 3 hr.; Chem. 201, 3 hr.; Chem. 262, 2 hr.

ENGINEERING: Mat.Sci.E. 255, 3 hr.; C.E. 160, 4 hr.; C.E. 170, 3 hr.; C.E. 260, 3 hr.; C.E. 270, 3 hr.; C.E. 271, 3 hr.; E.E. 105, 4 hr.; E.E. 120, 3 hr.; E.E. 121, 2 hr.; I.E. 140, 3 hr.; I.E. 250, 3 hr.; I.E. 288, 2 hr.; T.A.M. 103, 3 hr.; T.A.M. 104, 3 hr.; T.A.M. 200, 3 hr.; T.A.M. 203, 3 hr.; M.E. 20, 3 hr.

FORESTRY: For. 112, 3 hr.; For. 123, 4 hr.; For 124, 3 hr.; For. 137, 3 hr.; For. 138, 3 hr.; For. 139, 3 hr.; For. 151, 2 hr.; For. 170, 171, 172, 173, Forestry Problems, 1 hr. each; For. 222, 3 hr.

LANGUAGES: German 121 and 122, 6 hr.; Russian 1 and 2, 6 hr.; French 1 and 2, 6 hr.

MATHEMATICS: Math. 240 or 253, 3 hr.; Math. 242, 3 hr.; Math. 256, 3 hr.

PHYSICS: Physics 113, 114, 3 hr. per sem.; Physics 117, 3 hr.; Physics 221, 3 hr.; Physics 284, 3 hr.

OPTION LEADING TO GRADUATE STUDY IN ENGINEERING

There is a need for wood engineers to carry on research and developmental work for industrial and governmental organizations. The wood science option offers an opportunity to enter this important and rewarding field of work. Qualified students first complete four years of undergraduate study for the degree of Bachelor of Science in Wood Science (B.S.W.S.) and then study an additional year at the graduate level in the College of Engineering for the degree of Master of Science in Engineering (M.S.E.).

Those students who are interested in this program should take the following courses as restricted electives in their undergraduate program:

ENGINEERING: C.E. 160, C.E. 260, C.E. 270, C.E. 271, T.A.M. 104.

MATHEMATICS: Math. 240 or 253.

GRADUATE PROGRAM IN FORESTRY

The Division of Forestry offers graduate training in various phases of forestry leading to the degree of Master of Science in Forestry (M.S.F.).

A candidate for the master's degree must meet the requirements for admission to the Graduate School as listed in the Graduate School *Announcements*. This includes: (a) holding a bachelor's degree from an institution with a full four-year program, (b) filing the application for admission with the Registrar of the University at least one month prior to registration, and (c) having the registrars of colleges or schools previously attended send an official transcript directly to the Registrar of the University at least one month in advance of registration. In addition, master's candidates must take the Graduate Record Examination, preferably prior to registering for graduate work at the University.

Admission to the Graduate School does not constitute acceptance of a student by the Division of Forestry. The student must also be admitted by the Division, and should contact the Division's Director to determine whether or not he will be accepted.

The program of study for each master's candidate will be determined by consultation between the adviser, student, and the student's graduate committee. The curriculum will be flexible and determined by the academic background and interests of the individual. Students having a deficiency in undergraduate prerequisite courses will be required to take and pass such courses without credit during their graduate program.

A candidate for the Master of Science in Forestry degree must pass satisfactorily a minimum of 30 credits of approved work, of which no more than 6 may be thesis credits. Twelve months of residence is required. The thesis, required of each candidate, must be the result of independent research based on field and laboratory work.

A number of teaching assistantships, based on a 12-month period, are available for graduate students. Recipients of these assistantships will help with the undergraduate program for 20 hours per week. Students holding assistantships will need a minimum of two years, or equivalent, to complete the requirements for the master's degree. Maximum credits which they are allowed to carry are 10 hours per semester; tuition is exempt.

Courses of Instruction in Forestry

Undergraduate Division

1, 2. The Profession of Forestry. I and II. 1 hr. per sem. (Required only for students who rank as freshmen in the Division of Forestry.) Survey of the profession of forestry and the opportunities available to foresters.

3, 4, 5, 6. Forestry Convocation. I and II. No credit. All students are expected to attend the weekly convocation. Attendance is required of students during their first four semesters in the Division of Forestry. Speakers and timely topics in forestry and allied fields are presented.

11. Silvics. II. 3 hr. PR or conc: Bot. 67, 68. Forest and environment factors; site and type characteristics.

21. Forest Mensuration. II. 4 hr. PR: Math. 2, 4. Measurements of forest products, trees, and stands; timber estimating; introduction to growth and yield.

106. Forest Surveying and Mensuration Field Practices. S. 5 hr. PR: Bot. 67, C.E. 5, For. 21. The application of surveying and mensurational practice with emphasis on field problems.

107. Forest Management, Utilization, and Wildlife Practices. S. 5 hr. PR: For. 106. Study of forest management, utilization, and wildlife problems. Trip to observe forest management and utilization in the Southern Pine Region.

112. Silvicultural Systems. I. 3 hr. PR: For. 11. Principles of regeneration cuttings, intermediate cuttings, and cultural operations, with their application to forest stands.

113. Seeding and Planting. II. 3 hr. PR: For. 11. Seeding and planting nursery practice; phases of artificial regeneration.

114. Principles of Forest Economics. II. 3 hr. PR: Econ. 1 or Agr. Econ. 102. The economics of production, distribution, and use for forest goods and services. Emphasis is on the use of analytical methods and techniques in dealing with forest economic problems.

116. Regional Silviculture. I. 2 hr. PR: For. 11, PR or conc: For. 112. Major forest types of the United States; their composition, management, problems, and silvicultural treatment.

123. Forest Management. I. 4 hr. PR: Summer Camp, PR or conc: For. 112. The principles of sustained yield forest management. Organization of the forest area, selection of management objectives, application of silvicultural systems, and regulation of the cut. The forest management plan.

124. Forest Finance. I. 3 hr. PR: For. 114. Cost and income items in producing and exploiting forest crops; appraisal of stumpage and damages.

125. Forest Policy and Administration. II. 3 hr. (Upperclassmen only). Forest policy in the United States; important federal and state laws; administration of public and private forests.

126. Forest Measurement by Aerial Photographs. II. 2 hr. PR: For. 21. Elements of photogrammetry; preparation of maps; interpretation of forest types and timber volumes from aerial photographs.

131. Wood Identification. I. 3 hr. PR: Bot. 67, 68. Identification of commercial timbers of U.S.; basic properties and uses of different woods.

132. Properties of Wood. I. 3 hr. PR: For. 131. Physical and mechanical properties of wood; testing, machining, gluing, finishing, and special processing of wood.

135. Seasoning and Preservation. II. 4 hr. PR: For. 131. Purposes, effects, and methods of seasoning and preserving wood.

136. Wood Processes and Products. II. 3 hr. PR: For. 21. The conversion of standing timber into primary and secondary products.

137. Grading Wood Products. II. 3 hr. PR: For. 21, 131. Inspection methods and application of standard grading rules to forest products, with emphasis on the inspection of hardwood and southern pine lumber.

138. Advanced Lumbering. II. 3 hr. PR: For. 133. Organization of the business operation of logging equipment, records, and cost control.

139. Marketing Forest Products. II. 3 hr. PR: For. 134. Methods of marketing lumber and other forest products in domestic and foreign trade.

140. West Virginia's Natural Resources. I, II. 3 hr. (Primarily for students enrolled in the College of Education, but open to other upper-division students. Professional forestry students may not take this course for credit.) A survey of policies and practices in development and use of soil, water, forest, wildlife, mineral, and human resources in West Virginia.

141. Wildlife Management. II. 3 hr. PR: Bot. 61 and Biol. 2. Basic principles of handling wildlife as a forest crop, including population dynamics, ecological relationships, social behavior, habitat manipulation, and game administration.

142. Recreational Developments. II. 2 hr. PR: C.E. 6, Summer Camp. Needs of the active and passive recreationist and means of supplying facilities for meeting these needs in public forests.

143. The Forest Range. II. 2 hr. PR: C.E. 5. A survey of basic range management techniques and practices on forest lands, with consideration of range mapping and important forage plants.

144. Forest Zoology. II. 3 hr. PR: Biol. 2 or Zool. 2. The relationship of mammals, reptiles, amphibians, and fish to the forest, with emphasis on the ecology and taxonomy of these groups.

145. Life Histories of Game Animals. II. 3 hr. PR: Biol. 2 or Zool. 2. Field and laboratory studies of game-bird and game-mammal life histories, with special reference to management of population of these species.

146. Ornithology. II. 2 hr. PR: Biol. 1, 2, or consent. Identification, distribution, and ecology of birds (particularly of forest lands).

151. Forest Protection. I. 2 hr. (Upperclassmen only). Preventative action, preparation activities, and control of forest fires.

170, 171, 172, 173. Forestry Problems. I, II. 1 hr. ea. For seniors only. (4 hr. maximum).

183. Farm Woods Management. II. 3 hr. (Professional forestry students may not take this course for credit.) Characteristics of forest trees; management of farm woods for timber, wildlife, watershed protection, and recreation; measuring and marketing farm timber; plantation establishment.

217. Forest Management Plans. II. 2 hr. PR: For. 123. Analyses of forest management plans. Construction of a sustained yield timber management plan for a specific forest tract.

222. Forest Mensuration. II. 3 hr. PR: For. 21. The measurement of growth and yield; statistical methods applied to forest measurement problems.

232. Mechanical Properties of Wood. I. 3 hr. PR: T.A.M. 102. Properties and behavior of wood as a structural material.

Graduate Division

311. Environmental Relationships in Hardwood Forests. I. 3 hr. PR: For. 112. The study of environmental factors affecting establishment, composition, and growth of hardwood forests.

312. Silvicultural Practices for Hardwood Forest Types. II. 3 hr. PR: For. 112, 116. Designing proper silvicultural systems for managing Appalachian hardwood stands; reconstructing stand histories, recognizing problems, and prescribing appropriate silvicultural treatment.

315. Advanced Forest Regulation. I, II. 2 hr. PR: For. 123 or equiv. An intensive study of area and volume regulation suitable for applied forestry in the United States.

320, 321. Special Topics. I, II. 2-4 hr. per sem. PR: Consent. (For the Master of Science Degree, Special Topics ordinarily may count 2 to 4 hours; maximum credit, 6 hr.).

350, 351. Seminar in Silviculture. I, II. 1-6 hr. per sem. PR: Consent. Reports and discussions of recent research in fundamental and applied phases of silviculture with emphasis on hardwood forest types.

380, 381, 382. Research. I, II, S. 1-6 hr. per sem. PR: Consent. For graduate students working on a thesis problem.

The Division of Home Economics

PURPOSE

The curriculum in the Division of Home Economics is designed to provide a professional education for persons expecting to work directly or indirectly with families in improving the quality of their living. The purpose of home economics is to assist individuals and families in developing satisfying relationships within the family and between the family and other community institutions. It contributes to the creation of a physical environment conducive to the development of human resources. Home economists work through existing economic and social organizations to encourage the improvement of goods and services used by consumers and to provide leadership in teaching people to consume to meet their changing needs.

CAREERS

Home economists find professional opportunities in education, business and public service. They may work directly with families; specific age groups such as children, youth or aged; or individual consumers; and indirectly through educational programs in various communication media (radio, television, journalism). Home economists are employed as teachers, nursery school supervisors, extension workers, 4-H Club agents, YWCA workers, dietitians, home service representatives, radio and television programmers, interior designers, fashion coordinators, and buyers. Increasingly their competencies are being sought by international agencies such as the Peace Corps and other cultural and educational exchange programs.

FACILITIES

The Division of Home Economics is located in Oglebay Hall at the center of the Main Campus. Its specialized facilities include teaching laboratories for housing and design, clothing and textiles, foods and nutrition, child development; a student lounge, and reading room.

REQUIREMENTS FOR THE DEGREE

Students have the choice of four options toward a degree in home economics; social science emphasis, physical science emphasis, art emphasis, or general. The degree granted is a Bachelor of Science. Students may also pursue a Bachelor of Arts degree with a major in home economics by fulfilling the requirements as set forth in the *Announcements* of the College of Arts and Sciences.

Total hours in Home Economics	36
Total hours outside Home Economics	80
Electives	12
GRAND TOTAL	128

Required Courses

I. University Core

English Composition	6 hr.
Physical Education	4 hr.
Core Group A	12 hr.
Art, Music, Foreign Language, Literature, English Literature, Philosophy	
Core Group B	12 hr.
Economics, History, Psychology, Political Science, Sociology	

Core Group C ..... 12 hr.
Biology, Chemistry, Geology,
Mathematics, Physics

TOTAL ..... 46 hr.

II. Home Economics Professional Core

1. Child Dev. and Fam. Relations 114 ..... 3 hr.
2. Clothing and Textiles 2 or 102 ..... 3 hr.
3. Food and Nutrition 1 or 135 ..... 3 hr.
4. Home Mgmt. & Fam. Econ. 210 or 230 ..... 3 hr.
5. Housing and Design 3 ..... 3 hr.

TOTAL ..... 15 hr.

III. Options

a. Social Science Emphasis
   1. Additional courses in social science area ..... 12 hr.
   2. Additional courses in child development and family relations, home management and family economics areas ..... 14 hr.
   3. Electives ..... 41 hr.

   TOTAL ..... 67 hr.

b. Physical science emphasis
   1. Additional courses in physical sciences, work in at least two fields ..... 12 hr.
      a. Biology, bacteriology, zoology, genetics
      b. Chemistry
      c. Mathematics, statistics, physics
   2. Additional courses in foods and nutrition ..... 15 hr.
   3. Speech ..... 3 hr.
   4. Electives ..... 37 hr.

   TOTAL ..... 67 hr.

c. Art emphasis
   1. Additional courses in at least two of the following areas: ... 21 hr.
      a. Accounting, marketing, journalism
      b. Art
      c. Psychology, sociology, history
   2. Additional courses in food and nutrition ..... 15 hr.
      design areas ..... 15 hr.
   3. Speech ..... 3 hr.
   4. Electives ..... 28 hr.

   TOTAL ..... 67 hr.

d. General—Those wishing a vocational home economics teaching certificate must have at least 8 hours in each area of home economics in addition to the general and professional education requirements. (See College of Education *Announcements* for details.)
   1. One additional 3 hour course in each area plus 6 hours of electives in home economics ..... 21 hr.
   2. Electives ..... 46 hr.

   TOTAL ..... 67 hr.

Courses of Instruction in Home Economics

FOOD AND NUTRITION

Associate Professors Yearick and Jones; Assistant Professor Graf.

FN

1. Elementary Nutrition. I. II. 3 hr. Essentials of adequate diet; applications are made with particular reference to needs of college students.

15. Food Selection and Preparation. I, II. 3 hr. PR: 8 hr. of a laboratory science. (2 lec., 1 lab.). Basic principles of food selection, care and preparation. Emphasis is placed on the chemical and physical properties of foods and reactions which occur during processing.

101. Nutrition. I. 3 hr. PR: Biochem. 139 or consent. (2 lec., 1 lab.). The role of food nutrients in the physiological and biochemical processes of the body; nutritional needs of healthy individuals under ordinary conditions and in periods of physiological stress. Offered in alternate even years.

108. Quantity Cookery. I. 3 hr. PR: FN 115. (1 lec., two 3-hr. lab. arranged). Application of principles to preparation of food in large quantities. Use of standardized formulae, calculation of costs, and use of institution equipment. Field trip included.

115. Meal Planning, Preparation, and Service. I, II. 3 hr. PR: FN 15 or consent. (1 lec., 3-hr. lab.). Selection and purchase of foods; planning, preparing and serving meals with emphasis on time, energy, and money management.

121. Nutrition and Family. II. 3 hr. PR: FN 1. A family-centered approach to nutrition, emphasizing the different needs of its members. Opportunity to explore nutritional problems and their solutions through contacts in the community.

128. Institutional Buying. I. 2 hr. PR: FN 108. Producing areas, distribution of food products, specifications, storage and food practices in quantity buying. Observation in local wholesale markets, warehouses, and storage units. Offered in alternate even years. Tour of market facilities in Pittsburgh area required.

135. Food and People. I. 3 hr. A study of the cultural, social, ethnic and economic problems involved in feeding families.

138. Institution Organization and Management. II. 3 hr. PR: FN 108. Principles of organization and management of food service. Field trip included.

148. Laboratory Practice in Institution Management. I, II. 2 hr. PR: FN 138 and consent. Experience under supervision in planning, preparing and serving food in an institution. Selection of place and type of experience to be determined by needs of students.

201. Diet Therapy. II. 3 hr. PR: FN 101, Zool. 271. Adaptations of normal diet for diseases whose prevention or treatment is largely influenced by diet. Offered in alternate odd years.

205. Experimental Cookery. II. 3 hr. PR: FN 15, Chem. 131, (1 hr. lec., 2 2-hr. lab.). Utensils, ingredients, temperature, manipulation, and cooking methods as they affect quality of cooked products. Offered in alternate odd years.

211. Readings in Nutrition. II. S. 1-4 hr. PR: FN 101 or consent. Review of current literature and of present research. Topics depend upon needs and interest of class members.

215. Food Preservation. I. 2 hr. PR: FN 15. (1 1-hr. lec., 1 2-hr. lab.). Fundamental principles involved and actual experience in various methods of food preservation. Offered in alternate odd years.

221. Community Nutrition Problems. I. 2 hr. PR: Consent. (2 hr. lec., field work.) Includes consideration of organizations and agencies through which these problems may be solved.

281. Problems in Nutrition and/or Diet Therapy. 1-4 hr. PR: Consent.

285. Problems in Foods. 1-4 hr. PR: Consent.

288. Problems in Institution Management. 1-4 hr. PR: Consent.

301. Graduate Nutrition Seminar. 1-4 hr. PR: FN 101 and consent. Review and discussion of recent progress in foods and nutrition research.

361. Nutrition Research. 1-6 hr. PR: FN 101, Chem. 6 or 106 or consent. Research in foods and/or nutrition.

TEXTILES AND CLOTHING

Associate Professor Dietrich; Instructor Weibel.

TC

2. Principles of Clothing Construction. I, II. 3 hr. (Three 2-hr. periods per week). Basic principles of clothing construction including pattern alteration and fitting. Placement tests will be given for sectioning.

17. Textiles. I, II. 3 hr. (2 lec., 1 lab.) Textile fibers and fabrics studied with view to their use in dress and in the home. Characteristics of the major fibers and their suitability to various uses. Study of standard and novelty materials with emphasis on appropriate use and care.

102. Clothing For the Family. I. 3 hr. (3 lec.) Clothing for the family in relation to the social, psychological, and economic factors including a study of the clothing industry, trends, and cultural significance. Field trip included.

117. Textile Buying. II. 2 hr. PR: TC 17. Lecture and laboratory combined. Buying of textiles for all types of clothing and for the household. At least one field trip required.

212. Advanced Clothing Construction. II. 2 hr. PR: TC 232 or consent. Offers opportunity for creative expression and for understanding of pattern design through handling of fabrics on dress form. Costumes are designed, draped and constructed.

217. Readings in Textiles. I. 2 hr. PR: TC 17. Review and discussion of current literature reporting recent research in the field. Offered in alternate even years.

222. Tailoring. II. 3 hr. PR: TC 2, 17. Tailoring of suits and coats. Emphasis placed on professional techniques, advanced fitting and construction of garments. Second garment constructed by fast method techniques.

232. Costume Design. I. 2 hr. PR: TC 2, 117. Techniques of figure and fashion drawing. Designing for individuals of various types and ages. Some history of costume included.

282. Problems in Clothing. 1-4 hr. PR: Consent.

287. Problems in Textiles. 1-4 hr. PR: Consent.

HOUSING AND DESIGN

Assistant Professor Ramsey.

HD

3. Introduction to Related Art. I. II. 3 hr. The use of the design elements and the application of the design principles to stimulate imagination and creative ability and to develop discriminating judgment in selection and arrangement of materials used for the individual and the home.

23. Housing Design. I, II. 3 hr. PR: HD 3 or consent. Housing and home planning as they relate to family ilving. Selection, arrangement, and use of the interior and exterior space for activities carried on, in, and around the home.

123. Interior Design. I, II. 3 hr. PR: HD 23 (2 lec., 1 lab.). The practical and aesthetic aspects of coordinating the furnishings, background, accessories, lighting, and space of a house for family living.

133. Craft Design. I, II. 2 hr. PR: HD 3 or Art 122. Creative design with emphasis on originality, design quality and the development of craft techniques in several of the following: stitchery, weaving, enameling, block printing, silk screening, batik, and other art media.

283. Problems in Housing and/or Design. 1-4 hr. PR: Consent.

CHILD DEVELOPMENT AND FAMILY RELATIONS

Professor Brown; Assistant Professors Ayersman and Taylor.

CDFR

106. Child Development. I, II. 3 hr. PR: Psych. 1 or 3, or Ed. 105. (2 lec. and 1 2-hr. lab. arr.) Principles of development during childhood including physical, psychological, and social factors affecting behavior. Observation and participation in the University Nursery School.

114. Family Relations. I, II. 3 hr. An introductory course in the study of marriage and the family. Attention is placed particularly on mate selection, the interplay of social roles in family relations, and problems of decision-making and adjustment arising out of the demands of the contemporary social setting.

126. Infant Development. I. 2 hr. (1 lec., 1 lab.). Development characteristics and problems during the prenatal period and the first eighteen months with implications for guidance and care.

224. Family and the Individual in the Community. I. 3 hr. PR: One course in the family, or Sociology, or consent. Social psychological analysis of the individual in the family and in other social systems. Involves the study of role relationships, community processes and attitudes and values as they affect the behavior of the individual.

264. Family Development. I, II. 3 hr. PR: CDFR 114 or consent. A professional course designed to prepare students for work with families in their varying stages of development and different socio-economic levels. Involves intensive study of family relationships as affected by differing stages of the family life cycle, from beginning family through the aging couple. Lecture, discussion, and observation of families.

266. Needs of Adolescents. I, II. 3 hr. A study of adolescent needs as met by the home with contributions of other agencies such as church, school and youth groups. Physical, social and integrative needs will be considered from the standpoint of needs of all family members as well as the individual.

276. Seminar in Child Development. II. 2 hr. PR: Senior standing and consent A review and discussion of recent literature pertaining to child development Offered in alternate years.

284. Problems in Family Relations. 1-4 hr. PR: Consent.

286. Problems in Child Development. 1-4 hr. PR: Consent.

376. Thesis in Child Development. 6 hr. PR: HEEd. 309 and consent. Thesis for the degree of Master of Science in Home Economics.

HOME MANAGEMENT AND FAMILY ECONOMICS

Assistant Professor Jack; Instructor Armstrong.

HMFE

10. Elementary Management. I, II. 2 hr. The application of management to the use of time, money, energy, and other resources to achieve individual goals.

120. Demonstration Techniques. I, II. 2 hr. PR: Minimum of 4 hr. in each of four areas of home economics, or consent. Lecture demonstration as means of presentation of demonstrations suitable for secondary schools, and use with adult groups.

130. Principles of Home Management. I, II. 2 hr. An intermediate course in management as applied to the family and homemaking. Detailed consideration of family goals and resources.

210. Family Economics. I, II. 3 hr. PR: Senior or graduate standing. Management of the family's money resources. Consideration of the economic problems of families, of planned spending and saving, and of the role of the consumer.

230. Home Management, Principles and Application. I, II. 3 hr. PR: Upper division standing. Study and application of management in a variety of situations faced by the family with opportunity to integrate knowledge from other courses.

250. Household Equipment. I, II. 2 hr. Selection, arrangement, use and care of equipment for various situations and for different income levels. Laboratory and discussion.

280. Problems in Home Management and/or Family Economics. 1-4 hr. PR: Consent.

HOME ECONOMICS EDUCATION

Professor Brown.

Ed. 262. Vocational Home Economics in Secondary Schools. II. 3 hr. PR (or parallel): Ed. 120, 124, 163, and 25 hr. in Home Economics.

HEEd.

209. Evaluation in Home Economics. II. 3 hr. PR: 30 hr. of home economics, 7 hr. of Education. Experience in selecting, devising, and using evaluation devices for appraising student progress toward desired goals in home economics education. Offered in alternate odd years.

219. Adult Education in Homemaking. I. 3 hr. PR: 30 hr. of home economics, and 7 hr. of Education. Current trends and present activities. Organization of adult classes; development of unit outlines; consideration of teaching methods; illustrative material and bibliography. Offered in alternate even years.

279. Seminar in Home Economics Education. II. S. 3 hr. PR: Senior standing and 6 hr. of Education. A review and discussion of recent literature pertaining to home economics at the junior and senior high school levels and the college and adult levels based on the history of the home economics movement from the Lake Placid Conference in 1909 to the present time.

309. Research Methods. 2 hr. Adaptations of research techniques to problems in home economics. For students writing problems or thesis.

319. Home Economics Curriculum. 3 hr. PR: Experience in teaching home economics and consent. Selection and organization of learning experiences in home economics. Practices and techniques currently used for curriculum planning and construction.

329. Supervision in Home Economics. 2 hr. PR: Teaching experience and consent. Designed for home economics teachers preparing to serve as supervising teachers in "off-campus" training centers. Function of supervision and organization of supervised teaching program. Techniques for helping students in training for teaching home economics.

360. Problem Report for the Degree of Master of Home Economics. 1-3 hr. PR: HEEd. 309.

389. Problems in Home Economics Education. 1-4 hr. PR: Consent.

HONORS PROGRAM

100. Home Economics Honors Program. 3 hr. PR: Second-semester junior standing; at least 2 academic years in residence at West Virginia University; overall grade-point average 3.0 or better; grade-point average in home economics courses 3.20 or better. Individual special problems for undergraduates of second-semester junior standing who show special ability and interest in one of the following fields: child development, home economics education, or nutrition. Admission dependent only upon the recommendation of the adviser and the Honors Course Committee. Hours arranged.

110. Home Economics Honors Program. 3 hr. PR: First-semester senior standing; overall grade-point average 3.0 or better; grade-point average in home economics 3.25 or better, and Home Economics 100. Individual special problems for undergraduates of first-semester senior standing who show special ability and interest in one of the following fields: child development, home economics education, or nutrition. Admission only upon the recommendation of the adviser and the Honors Course Committee. Hours arranged.

120. Home Economics Honors Program. 3 hr. PR: Second-semester senior standing; overall grade-point average 3.0 or better; grade-point average in home economics courses 3.25 or better; Home Economics 110. Individual special problems for undergraduates of second-semester senior standing who show special ability and interest in one of the following fields: child development, home economics education, or nutrition. Admission only upon the recommendation of the adviser and the Honors Course Committee. Hours arranged.

The College of Arts and Sciences

GENERAL INFORMATION

ORGANIZATION AND PURPOSE

The College of Arts and Sciences includes a lower division and an upper division. The lower division consists of work of the first and second years, and the upper division consists of work of the third and fourth years.

Instruction in the College is administered through the following departments and integrated studies:

Art
Biology
Chemistry
Economics
English Language and Literature
Foreign Languages
Geology and Geography
History
Home Economics
Library Science
Mathematics and Astronomy
Philosophy and Religion
Physics
Psychology
Political Science
Sociology
Social Work
Speech
Integrated Studies:
- Humanities
- Social Sciences
- Biological Sciences
- Physical Sciences

MAIN OBJECTIVES

The curriculum of the College of Arts and Sciences has these main objectives:

1. *General Culture.* Work of the lower division is intended to complete what is usually termed "a general education." It rounds out the program of studies pursued in high school and promotes full development of the student as an individual and as a member of society. Ideally, the student should undergo a well-proportioned development intellectually, spiritually, physically and emotionally. The end of such development should be an inner balance or stability on the basis of which further growth can take place. Development of the individual as a member of society is to be measured in terms of his or her usefulness and sense of responsibility to the social order. The student should develop the capacity of intellectual participation as a citizen in the community, state, country, and world. A general education should, therefore, provide for all students a meaningful experience appropriate to the individual and social needs which all citizens have in common as members of a free society in the contemporary world.

2. *Specific Attributes*: Most of the attributes of a general education can be placed in one of three categories: attitudes, areas of knowledge, and skills.

The following attitudes should be attained as a result of a general education:

(1) An attitude of tolerance or open-mindedness, characterized by a cosmopolitan outlook that will enable the student to see beyond the limits of his own profession, his own economic status, and his own country;
(2) An attitude of truth-seeking characterized by scientific objectivity and motivated by intellectual curiosity;
(3) An attitude of intelligent appreciation towards nature and the arts that will, as far as the student's own endowments will permit, help him in his esthetic and ethical choices; and
(4) An attitude of dispassionate self-appraisal, based on an understanding of his own nature and characterized by an awareness of his own mental strength and weakness.

The area of knowledge which should be common possession of all educated persons may be conveniently grouped into two divisions:

(1) A knowledge of man as a social and intellectual being, of his place in contemporary civilization, and of that civilization's place in the history of man.
(2) A knowledge of man as an organism and of man in his relation, direct or indirect, to the biological and physical environment in which he lives.

Three basic skills are regarded as indispensable to all educated persons:

(1) That of self-expression or communication, involving writing, speaking, reading, and listening.
(2) That of calculation, that is, a knowledge of, and some skills in, basic mathematics.
(3) A familiarity with at least one foreign language, not only as a useful skill, but also as a means of promoting tolerance and sympathetic understanding of peoples who do not speak our language.

BUILDINGS AND EQUIPMENT

The principal buildings used by the College of Arts and Sciences are the Physics Building, Woodburn Hall, Chemistry Building, Science Hall, Armstrong Hall, Brooks Hall, Reynolds Hall, Oglebay Hall, and Mineral Industries Building.

The central structure of the present Woodburn Hall was built in 1876, the north wing in 1900, and the south wing in 1910.

The Chemistry Building, a modern fireproof structure completed in 1926, houses the Department of Chemistry.

Armstrong Hall, a large four-story classroom building, was completed in the spring of 1950 and houses the Department of English and Department of Foreign Languages. Sociology, Social Work, and Library Science are housed in Engineering Building No. 1.

Brooks Hall, a modern five-story building, was put into service in the fall of 1950. It houses the Department of Biology and includes classrooms, laboratories, and excellent facilities for research work in the biological field.

The Physics Building was occupied in September, 1952. It is a six-story fireproof building, modern in every respect and equipped with machine shops, lecture rooms, and laboratories adapted to research in sound microwaves, atomic physics, and radioactivity. There is a special Radiation Laboratory on the second floor, open to all departments in the University interested in biophysics, biochemistry, agricultural chemistry, and medicine. This building also houses the Department of Mathematics.

COURSES RECOMMENDED

Two types of courses are recommended as common means for fostering the attributes of mind and character which a general education should develop in all students enrolled in the lower division of the College. They are:

1. Courses for the promotion of basic skills—calculation and communication.
2. General introductory courses for the elementary but organically integrated study of four fields of human knowledge—biological science, social science, physical science, and the humanities.

OPPORTUNITY FOR SPECIALIZATION

Work of the upper division is intended to provide intensive study in one or two fields of knowledge. It is based on the belief that an educated man or woman should not only know the fundamentals of several branches of study but should have a rather thorough knowledge of some selected field. In the upper division, therefore, the student concentrates on the major and one or two minors. The curriculum is sufficiently flexible, however, to meet the needs and tastes of individual students without at the same time exposing the student to the disadvantages of the free elective system.

SPECIAL PROVISIONS FOR THE JUNIOR CERTIFICATE

Experience has shown that students whose average in high-school subjects was below 75 per cent, or students who ranked in the lowest one-fourth of the high-school graduating class, probably will not succeed in the regular college curriculum. Nevertheless, such students may, by wise selection of studies, profitably

spend one or two years in college. Other students, for financial or other reasons, may not be able to attend college for more than one or two years. It is believed that students in either group may spend their time more profitably taking courses in which they are particularly interested from a cultural or vocational point of view than by following the curriculum leading to the A.B. Degree. Students who are not candidates for the A.B. Degree but who earn 64 hours of college credit and 128 grade points, including general University requirements, in residence at this College, will be awarded the Junior Certificate of the College of Arts and Sciences.

THE MAJOR SUBJECT

In the upper division the student concentrates on a major selected from the following list of subjects:

Art	German	Political Science
Biology	History	Psychology
Botany	Home Economics	Social Work
Chemistry	Latin	Sociology
Economics	Library Science	Spanish
English	Mathematics	Speech
French	Philosophy and Religion	Zoology
Geology	Physics	

Undergraduate Honors Program

Departments of the College of Arts and Sciences are permitted to establish undergraduate honors programs in conformity with the following provisions:

(a) *Admission to Honors.* Students admitted to honors will normally enter the honors program at the beginning of the second semester of the junior year.

(b) *Eligibility.* The principal qualification for admission to the honors program is ability to pursue independent academic work with vigor and imagination. A student will not qualify for admission to honors unless he has a cumulative grade-point average of at least 3.0 in all courses completed by the end of the fifth semester, and a grade-point average higher than 3.0 in the honor subject.

(c) *Program.* The heart of the honors curriculum is a coherent program of independent work, equal to a 3-hour course per semester, through the last three undergraduate semesters. Normally the honors work in the second semester of the junior year and first semester of the senior year will consist of independent reading or laboratory work, and the writing of reports. In his final undergraduate semester the student will prepare a thesis.

(d) *Examination.* Toward the end of the final undergraduate semester, the student must pass a comprehensive examination in the honors subject. The examination will ordinarily be written, though the Department may also require an oral examination.

Dean's List

The Dean of the College of Arts and Sciences will compile and release for publication through regularly prescribed University channels a list of those students who attained a grade-point average of 3.40 or higher on a total load of 14 or more credit hours at the end of each immediately preceding semester.

Classification of Students

To be classified as a freshman in the College of Arts and Sciences a student must have credit for at least 15 units of entrance requirements; to be classified as a sophomore he must have fulfilled all entrance requirements and have credit for 25 hours of college work; as a junior, 58 hours; as a senior, 92 hours.

Advisers

Lower Division. Each student in the lower division is assigned to an adviser who will assist in registration and who will have general supervision over the work of the student. Electives are chosen and changes in the program are made with the approval of the adviser. Students are urged to confer with advisers in respect to any difficulties or maladjustments in college life.

Upper Division. For transfer to the upper division a student must have completed a minimum of 58 hours and have maintained a grade-point average of 2.0 on all work for which he has received grades (except "W" and "WP").

Each student in the upper division is assigned to an adviser of the department to which the major subject belongs. The program of study and all changes in class assignments must be approved by the adviser.

Student Class Schedules

Each student will schedule his courses according to the curriculum he has chosen. A second-year student who has not completed all required courses listed in the first year of the curriculum that he is following will be required to schedule such courses before scheduling new courses. A student will not be registered for an upper-division course not provided in his lower-division curriculum unless he has satisfied all lower-division requirements or has scheduled the courses necessary to meet those requirements.

Withdrawal from scheduled classes will be permitted in an order reversed in priority from that stated in the preceding paragraph.

Maximum and Minimum Work

The maximum number of hours per semester for which a student may register is 18, the minimum is 14. A student in the upper-division may, however, with the approval of his adviser, register for a maximum of 20 hours per semester provided that during the semester immediately preceding his registration he has attained an average of 3.0 and that the load was not less than 14 hours.

Minimum Scholastic Standards

Normal progress toward upper-division status and graduation requires maintenance of a grade-point average of 2.0.

A student who receives a grade of "D" in any course during the terms or semesters in which he attempts his first 25 hours may repeat the course once during the next academic year in which he is enrolled. The second grade shall supersede the first if it is not lower than "D".

Probation and Suspension

Any student whose mid-semester grades are below passing in courses amounting to more than half of the total number of semester hours for which he is registered shall be placed on probation for the remainder of the semester. The terms of probation are determined by the scholarship committee.

Any student whose grades at the end of any registration period are below passing in courses amounting to more than half of the total number of semester hours for which he is registered shall be suspended from the University. A freshman subject to the operation of this rule at the end of his first registration period in residence shall be placed on probation for the succeeding registration period.

When any student falls 10 grade points or more below a 2.0 average, or when a lower-division student, after earning 58 semester hours, is ineligible to enter the upper division because his total grade-point average is less than 2.0, he shall be placed on probation and allowed a maximum of two semesters to reach a 2.0 average. If, while on probation, the student fails to show a reduction in his grade-point deficiency at the end of any semester or term, or if he fails to achieve a 2.0 average by the end of the second semester of his probationary period, he shall be suspended.

All actions of the Committee on Scholarship and the Dean that affect the standing of a student shall be reported by the Dean to the Registrar.

Attendance

1. Students shall attend all classes, including laboratory sessions, for which they have enrolled, unless prevented from doing so by illness, injury, authorized University activities, or other reasons approved by the Dean.

2. A student enrolled in a course numbered under 100 shall be reported by the instructor to his adviser and his dean on an appropriate form as soon as his absences exceed the number of class meetings in a normal week.

3. A student whose absences in a course numbered under 100 exceed the number of class meetings in three normal weeks:

(a) shall again be reported to his adviser and to his dean; and

(b) may be barred from the final examination in the course by the instructor, except that the student is permitted to appeal the instructor's decision to the Dean of the College of Arts and Sciences, whose ruling shall be final.

4. Any student in an upper-division course shall be reported to his adviser and his dean as soon as his absences jeopardize his class standing.

5. The instructor may bar a student in an upper-division course from the final examination for excessive absences if:

(a) the student has been reported to his adviser and to his dean for excessive absences, and

(b) after being reported for excessive absences, his subsequent absences exceed the number of class meetings in a normal week, and

(c) the total number of absences exceeds the number of class periods in the course during three full weeks.

The student may appeal the instructor's decision to the Dean of the College of Arts and Sciences, whose decision shall be final.

6. A student who fails to attend a class meeting of a course after twice being reported for absences from it shall again be reported, and thereupon may be suspended from the University by the Dean of the College of Arts and Sciences.

7. Attendance rules shall apply equally, and separately, to lectures, quiz sections, discussion groups, and laboratory sessions.

8. A student who must be absent from class for an extended period of time shall inform his adviser or his dean.

REQUIREMENTS FOR THE DEGREES

CREDIT DEFINED

The "semester hour" is the standard for computing the amount of work required for graduation in the curricula leading to the degrees. The "hour" represents the amount of work done in one semester (approximately 18 weeks) in one recitation hour with two preparation hours per week.

UNIVERSITY CORE CURRICULUM REQUIREMENTS

All undergraduates entering the University for the first time in September, 1964, or later must complete the University Core Curriculum requirements in order to graduate (see page 93.)

GENERAL REQUIREMENTS FOR ALL DEGREES

Foreign Language. Fewer than 6 hours in an ancient or modern language will not be counted towards any degree, diploma, or certificate in this College unless work in the same language has been offered for entrance. Credit earned in Foreign Languages 1 and 2 after September 1, 1963 will not be counted toward minimum degree requirements if the student has earned two or more units in the same language in high school or other preparatory school.

Electives. At least 6 hours must be taken in each subject offered as a free elective, but not more than 9 hours in isolated courses of less than 6 hours each, selected with the approval of the adviser, may be offered.

In addition to regular elective work in the College of Arts and Sciences which is offered by the faculties in the other colleges, work not to exceed 15 hours in the College of Law, College of Agriculture, Forestry, and Home Economics, College of Commerce, College of Engineering and the School of Mines, School of Music, School of Physical and Health Education, Recreation, and Safety, School of Journalism, or 6 hours of upper-division work in Military Science or Air Science, and 20 hours in the College of Education may be included in the list of elective credits offered by students in the College of Arts and Sciences. The total number of hours elected from other colleges shall not, however, exceed 24 hours in all.

The course in general biochemistry (Biochem. 239) is available (without additional fees) in the School of Medicine.

Major Subjects. A maximum of 42 hours in one subject (as listed on page 13) and, in those departments offering more than one subject, a maximum of 60 hours taken within the department may be counted toward the total academic hours required for graduation with the Bachelor of Arts degree.

English Proficiency Requirement

See page 92.

ASSOCIATE IN ARTS DEGREE

The degree of Associate in Arts is conferred on the student who completes Option B of the regular course. The core of this program is in four introductory general courses: Humanities, Social Science, Biological Sciences, and Physical Sciences.

Students who complete satisfactorily three area courses, as well as the regular requirements in a foreign language, English composition, physical education general program, and military science or air science (men), will be considered to have met not only the general requirements of the University but also general (i.e., nondepartmental) requirements of the College of Arts and Sciences. Students who meet these requirements and have 64 hours of college credit and a grade-point average of 2.0 on all work in residence in the College of Arts and Sciences will be entitled to the two-year degree of Associate in Arts.

BACHELOR OF ARTS DEGREE

The Bachelor of Arts Degree in the College of Arts and Sciences is conferred upon any student who complies with the general regulations of the University concerning degrees, satisfies all entrance, college, and departmental requirements, and completes any one of the following courses of study:

I. Regular course
II. Premedical and Predental courses
III. Combined courses:
    (a) Arts and Dentistry
    (b) Arts and Medicine

In order to qualify for the degree of Bachelor of Arts in the College of Arts and Sciences, at least 128 semester hours of credit must be presented. A minimum of 124 hours must be established in subjects exclusive of credit earned in required Physical Education, required Military Science or Air Science, and English 0. (Math. 2, completed after September 1, 1962, will not be included in the 124 hours.) Credit earned in Foreign Languages 1 and 2 after September 1, 1963 will not be counted toward minimum degree requirements if the student has earned two or more units in the same language in high school or other preparatory school.

Students transferring to West Virginia University from other institutions should ordinarily do so not later than the beginning of the third year. Such students must meet all the requirements of the lower division. All lower-division deficiencies must be met as soon as possible after admission to the College of Arts and Sciences, whereupon such student may register officially in the upper division.

I. Regular Course (128 Hours)*

LOWER-DIVISION CURRICULUM

Option A:

(a) *General University Requirements*:
Military Science or Air Science[1]—8 hours.
Physical education (men)[2]—2 hours.
Physical education (women)[2]—4 hours.

(b) *Science.* At least 8 hours of a laboratory science chosen from the following: biology, botany, chemistry, geology, physical science, physics, psychology, and zoology.

(c) *Foreign Language.* To be eligible for graduation a student must have completed twelve semester hours in a foreign language in college or two units for entrance and six hours beyond courses 1 and 2 in the same language in college. Credit earned in Foreign Languages 1 and 2 after September 1, 1963 will not be counted toward minimum degree requirements if the student has earned two or more units in the same language in high school or other preparatory school.

(d) *English Composition.* Ordinarily 6 hours of English composition (English 1 and 2) will be required of all freshmen. In case a freshman is not qualified to meet the requirements in English 1, as shown by placement or other tests, he (or she) will be assigned to English 0, which carries 3 hours of University credit. Upon the successful completion of the work in English 0, the student will register for the regular work in English 1 and English 2.

(e) *Distribution Requirements*: A selection of one subject from each of the following groups to total 24 hours is required. At least 12 hours shall be from lower-division courses.
(1) At least 6 hours of History or of Humanities (general course).
(2) At least 6 hours of Economics, of Political Science, or Social Science (general course).
(3) At least 6 hours of Literature (from the English language or a foreign language) or of mathematics.

*See second paragraph under "Bachelor of Arts Degree," above.

[1]Military science or air science instruction is required of all male students except those who at the time of matriculation are 23 years of age or have completed no less than 58 hours of work, and all who have credit for 8 hours of military science or air science or 1 unit of entrance credit in military academy. Students must register for military science or air science upon their entrance into the University and continue in the course until the full requirement has been met or until a regular exemption card is filed in the Office of the Registrar.

[2]Two hours of physical education general program for men, to be taken during the first year of residence, and four hours of physical education general program for women, to be taken during the first and second years in residence, are required for graduation of students presenting fewer than 58 semester hours, unless previous credit has been allowed.

(4) At least 3 hours of Art, of Home Economics, of Library Science, or of Speech.
(5) At least 3 hours of Geography, of Philosophy, of Sociology, or of a laboratory science not chosen in (b) above.

(f) *Electives.* Electives shall be chosen, under the supervision of the adviser, to make a total of 64 hours. Ordinarily freshmen should register for required courses. Electives should be used in the second year chiefly in meeting the preliminary requirements of the departments in which the students expect to do work of the major (or minors) in the upper division.

Option B: General Course Program of Integrated Studies (64 Hours)

A sample schedule of courses for students enrolled in the whole program of Integrated Studies and planning to complete it in two years follows:

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Humanities 1	4	Humanities 2	4
Biological or Physical Sciences 1	4	Biological or Physical Sciences	2-4
English 1	3	English 2	3
Foreign Language	3	Foreign Language	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Electives	1-3	Electives	1-3
Maximum hours allowed	18	Maximum hours allowed	18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Social Sci. 1	4	Social Sci. 2	4
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives[3]	11-13	Electives[3]	11-13
Maximum hours allowed	18	Maximum hours allowed	18

UPPER-DIVISION CURRICULUM

1. *A major sequence* of 18 to 24 hours of upper-division courses, preceded by the proper lower-division courses prescribed as preparation for the major. This work should represent a coherent and progressive sequence of courses as outlined in the departmental announcements. This major subject will be selected when the student registers in the upper division, but the student must plan the work in the lower division in such a way as will meet the departmental requirements for the major and minor.
2. *One or more minor sequences* in areas related to the major field may be required by the major department.
3. *Distribution Requirements* to complete a total of 24 hours if Option A was used in the Lower-Division Curriculum. See (e) page 19.
4. *Electives,* under supervision of the departmental adviser, to make a total of 128 hours. A minimum of 124 hours must be established in subjects exclusive of credits earned in required Physical Education, required Military Science or Air Science, and English 0. (Math. 2, completed after Sept. 1, 1962, will not be included in the 124 hours). At least 58 hours must be selected from the upper-division courses.

[3]Students who do not present two units in a foreign language for entrance and who complete six hours in the same language in college must use three hours of electives here to complete the language requirements. Students who expect to complete the four-year course for a baccalaureate degree should use electives to complete prerequisites for a major or minor field while in the lower division.

II. Premedical and Predental Courses (128 Hours)*

The following sequence of courses is worked out for the guidance of students who are preparing for the study of Medicine, Dentistry, and the related professions. All of the required subjects are included. While the pre-professional student is meeting the entrance requirements of professional schools, committees on admission of professional schools prefer that he use his elective hours to secure broad, general training rather than to secure a large number of credits in any one special field. Leading medical and dental educators in the United States today are definitely in favor of a good general training rather than exclusive specialization in the so-called premedical sciences.

It is recommended that all premedical and predental students plan to complete the requirements for the Bachelor of Arts Degree.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Chem. 1	4	Chem. 2	4
Zool. 1 or Biol. 1	4	Zool. 2 or Biol. 2	4
Math. 3	3	Math. 4	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1 (M)	2	Elective (W)	2-3
Elective (W)	2-3	Mil. or Air Sci. 2 (M)	2
Maximum hours allowed	18	Maximum hours allowed	18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr*
Chem. 105 or 115	3-4	Chem. 115 or Psych. 1	3
Physics 1	4	Physics 2	4
Modern Foreign Language	3	Modern Foreign Language	3
Mil. or Air Sci. 3 (M)	2	Mil. or Air Sci. 4 (M)	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Group 1 elective	3	Group 1 elective	3
Group 4 elective	3	Group 4 or other elective	3
Maximum hours allowed	18	Maximum hours allowed	18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Modern Foreign Language	3	Modern Foreign Language	3
Group 2 elective	3	Group 2 elective	3
American or English Literature	3	American or English Literature	3
Chem. 163 or 233	4	Chem. 238 or elective	4
Zool. 231 or elective	5	Zool. 232 or elective	5
Maximum hours allowed	19	Maximum hours allowed	19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 163 or 233 or elective	4	Chem. 238 or elective	4
Zool. 231 or elective	5	Zool. 232 or elective	5
Electives	8-9	Electives	8-9
Maximum hours allowed	19	Maximum hours allowed	19

*A total of 128 semester hours of which 124 semester hours must be exclusive of credit in required Physical Education, required Military Science or Air Science and English 0. Math. 2, if completed after September 1, 1962, will not be included in the 124 hours. Credit earned in Foreign Languages 1 and 2 after September 1, 1963, will not be counted toward minimum degree requirements if the student has earned two or more units in the same language in high school or other preparatory school.

Many medical schools recommend that Chem. 233 and 238 and Zool. 231 and 232 be taken the year preceding entrance to medical school.

Candidates for the A.B. Degree in Premedicine or Predentistry must complete the following minimum number of credit hours in the subjects listed: English, 12 hr. (must include English 1 and 2 and 6 hr. of American or English literature); Foreign Language, 12 hr.; Mathematics, 6 hr. (must include Math. 3 and 4); Chemistry, 23 hr. (must include Chem. 1, 2, 115, 163, 233, 238 [105 also recommended]); Zoology, 18 hr. (must include Zool. 1 and 2 [Biol. 1 and 2 may be substituted], 231, 232); Physics, 8 hr.; Psychology, 3 hr.; Nonscience group, 30 hr. in addition to specific courses listed above (to be selected from Art, English, Humanities, Economics, Sociology, History, Political Science, Philosophy, Psychology, Speech, Foreign Language, Education, Latin, Home Economics, Music, Library Science, Mathematics, Social Science.) The following Arts and Sciences group requirements must be included in the Nonscience group: Group 1 (6 hr. of History or 6 hr. of Humanities [general course]); Group 2, (6 hr. of Economics or 6 hr. of Political Science or 6 hr. of Social Science [general course]; and Group 4 (3 hr. of Art or 3 hr. of Home Economics or 3 hr. of Library Science or 3 hr. of Speech). Arts and Sciences Groups 3 and 5 are included in specific departmental requirements. A minimum of 128 hours including 58 hours of upper-division courses are required for the degree.

III. Combined Courses

Special Requirements

Candidates for a combined A.B. degree (Premedicine or Predental) are required to meet the special provisions of one of the two groups listed below. These requirements are in addition to all other regulations prescribed in the particular curriculum for which the student is enrolled.

(a) A minimum of 96 hours of credit must be completed in the College of Arts and Sciences of West Virginia University of which 32 hours must be from the upper-division courses. If prior approval from the Scholarship Committee or the Dean of the College is obtained by formal petitioning at the time of acceptance into an accredited professional school or college, the successful completion of the first full year of the professional course may be offered in lieu of the senior work in residence. An official certification of the professional work must be made by the Registrar of the professional school to the University Registrar.

(b) A minimum of 64 hours of credits must be completed in the College of Arts and Sciences of West Virginia University of which 32 hours must be from the upper-division courses. If prior approval is obtained from the Scholarship Committee or the Dean of the College by formal petitioning at the time of acceptance into a professional school or college of West Virginia University, the successful completion of the first full year of professional work may be presented toward requirements for graduation. This option would apply only to students bringing transfer credits. In general, this option can only apply to transfer students.

Arts and Medicine or Dentistry (128 Hours)

(Recommended Curriculum for a Combined Course in Arts and Medicine or Dentistry)

Students who enter a School of Medicine or a School of Dentistry after the completion of a minimum of 107 hours (men) or 101 hours (women), of which 32 hours must be from the upper-division courses, of the premedical and predental curriculum and who have satisfied all provisions of the College of Arts and Sciences regulations governing combined course programs may receive the Bachelor of Arts Degree upon the successful completion of the first year of medicine or dentistry.

A student who is a candidate for the A.B. degree under the provisions of the curriculum must submit, at the time of his acceptance and prior to his registration in an accredited School of Medicine or School of Dentistry, a petition for the

degree to his adviser who will forward it with his recommendations to the Scholarship Committee. If the petition is approved, the candidate will be recommended for graduation upon receipt of certification from the professional school by the Registrar of the University to the effect that he has successfully completed the first year of medicine or dentistry.

FIRST YEAR

Same courses as required in the Curriculum for A.B. degree in Premedicine or Predentistry.

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 115 or Psych. 1	3	Chem. 115 or Psych. 1	3
Physics 1	4	Physics 2	4
Modern Foreign Language	3	Modern Foreign Language	3
Mil. or Air Sci. 3 (M)	2	Mil or Air Sci. 4 (M)	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Hist. 1 or 52	3	Hist. 2 or 53	3
Art 115, Speech 11, or Pol. Sci. 1	3	Art 115, Speech 11, or Pol. Sci. 1	3
Maximum hours allowed	18	Maximum hours allowed	18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Modern Foreign Language	3	Modern Foreign Language	3
American or English Literature	3	American or English Literature	3
Chem. 163	4	Pol. Sci. (upper division)	3
Chem. 233	4	Chem. 238	4
Zool. 231	5	Zool. 232	5
Maximum hours allowed	19	Maximum hours allowed	19

The following minimum number of credit hours must be completed in the courses listed: English, 12 hr. (must include English 1 and 2 and 6 hr. of American or English literature); Foreign Language, 12 hr.; Mathematics, 6 hr. (must include Math. 3 and 4); Chemistry, 23 hr. (must include Chemistry 1, 2, 115, 163, 233, 238); Zoology, 18 hr. (must include Zool. 1 and 2 [Biology 1 and 2 may be substituted], 231, 232); Physics, 8 hr.; Psychology, 3 hr.; Nonscience group, 15 hr. (must include Group 1, 6 hr. of History or 6 hr. of Humanities [general course]; Group 2, 6 hr. of Economics or 6 hr. of Political Science or 6 hr. of Social Science [general course]; and Group 4, 3 hr. of Art or 3 hr. of Home Economics or 3 hr. of Library Science or 3 hr. of Speech). Groups 3 and 5 of the College of Arts and Sciences requirements are included in specific departmental requirements.

Students in the Combined Course program are urged to attend at least one Summer Session.

BACHELOR OF SCIENCE DEGREE

The Bachelor of Science Degree is conferred upon a student who complies with the general regulations of the University concerning degrees, satisfies all entrance and college requirements, and completes the requirements of one of the fields listed below.

The minimum credit requirement varies with the several departments offering programs leading to the Bachelor of Science Degree. The minimum requirement shall be no less than 128 hours in any area. A minimum of 124 hours must be established in subjects exclusive of credit earned in required Physical Education, required Military Science or Air Science, and English 0. (Math. 2, completed after September 1, 1962, will not be included in the 124 hours). Credit earned in Foreign Languages 1 and 2 after September 1, 1963 will not be counted toward minimum

degree requirements if the student has earned two or more units in the same language in high school or other preparatory school.

For all details of the course of study leading to the Bachelor of Science Degree, refer to the pages listed.

1. Chemistry (see page 167)
2. Geology (see page 192)
3. Physics (see page 217)
4. Social Work (see page 231)
5. Speech Correction (see page 237)

A SECOND BACHELOR'S DEGREE

A student who has received a Bachelor's Degree in one department or college of West Virginia University may become eligible for a second Bachelor's Degree by earning an additional 30 semester hours in residence in the College of Arts and Sciences and meeting all requirements, departmental and otherwise, of the second Bachelor's Degree.

PRE-PROFESSIONAL COURSES

Not leading to degrees in the College of Arts and Sciences

(A). Pre-Commerce Curriculum

Candidates for the degree of Bachelor of Science in Business Administration and Bachelor of Science in Economics will register in the College of Arts and Sciences during their freshman and sophomore years. It is particularly important that Economics 1 and 2 be completed during the sophomore year since these courses are prerequisite for all upper-division courses in the College of Commerce. They will be transferred to the College of Commerce after completion of 58 semester hours of required and acceptable elective courses with a grade average of not less than "C".

Students must observe the University Core Curriculum Requirements as to distribution of elective courses. During the four years, in addition to the required courses listed herein, the student must complete 12 hours of Group A electives, 6 hours of Group B electives, and 9 hours of Group C electives from the list of approved elective courses.

The Pre-Commerce curriculum is as follows:

FRESHMAN YEAR		SOPHOMORE YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
English 1 and 2—Composition	6	Acctg. 1 and 2—Principles	6
Math. 3—College Algebra	3	Econ. 1 and 2—Principles	6
Pol. Sci. 2—Amer. Fed. System	3	English 18—Advanced Composition	3
Psych. 1—Intro. to Psych.	3	Speech 11—Public Speaking	3
Sociol. 1—Intro. to Sociol.	3	Mil. or Air Sci. 3 and 4*	4
Mil. or Air Sci. 1 and 2*	4	Phys. Educ.—Women's Program*	2
Phys. Educ.—General Program*	2	Electives	12
Electives	10		
TOTAL	30-34		32-34

*A minimum of 124 hours of credit must be earned in subjects other than required Physical Education and required Military or Air Science.

Students who select a foreign language as an elective must complete 6 hours in the same language at the University. Credit toward graduation is not allowed for English 0 or Mathematics 2. For further information see the *Announcements* of the College of Commerce.

(B). Pre-Education Curriculum

Candidates for the degree of Bachelor of Science in Secondary Education and Bachelor of Science in Elementary Education are registered in the College of Arts and Sciences until they have completed 58 hours or more of academic work in the lower division of the College, with a grade-point average of 2.0. They then transfer to the College of Education. During the Pre-Education period students are advised to complete as many as possible of the general courses required by the College of Education and for State certification, as shown in the bulletin *Teacher Training Programs—Requirements for Certification,* and/or the *Announcements* of the College of Education. These publications are available at the office of the Registrar.

In addition to the above general academic requirements, students preparing to teach in high school are advised to complete as many as possible of the required academic courses in two teaching fields. Those preparing to teach in the elementary school will follow directions applicable to that field.

Upon the successful completion of the entire 64 hours of work in the lower division, Pre-Education students are eligible for the Junior Certificate of the College of Arts and Sciences.

Teaching Certificates

The Dean of the College of Education is authorized by the Board of Governors to recommend all applicants for teaching certificates.

High-school teaching certificates may be obtained by students registered in the College of Arts and Sciences as well as in the College of Education, provided they meet the requirements for certification. To qualify for the elementary-school teaching certificate, the student will transfer to the College of Education at the beginning of the junior year.

For specific requirements in regard to certification see the bulletin *Teacher Training Programs—Requirements for Certification* and/or the *Announcements* of the College of Education. These publications are available at the Registrar's Office.

Candidates for the A.B. degree who wish to qualify for teaching certificates should indicate this fact to their adviser and plan their entire course with this in view. Unless this is done by the end of the freshman year, students may encounter difficulties in qualifying for the certificate by the time they receive their degree.

As a check, students should consult each semester with Mary C. Buswell or Angelo Orlandi, advisers of Pre-Education candidates for high-school or elementary-school teaching certificates, in the Pre-Education Office.

(C). Pre-Journalism Curriculum

Candidates for the degree of Bachelor of Science in Journalism are registered in the College of Arts and Sciences until they have earned at least 58 semester hours of college credit. During the freshman and sophomore years they should consult the Pre-Journalism counselor and should complete all or most courses specified for pre-journalism majors. For information concerning Science Specialization and upper-division courses consult the School of Journalism *Announcements.*

A cumulative, better than "C" average (2.25), is required for admission to the professional school. Before or soon after entering the University a student planning to become a journalism major should learn the touch system of typing.

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3	Journ. 18	3	Journ. 19	3
Hist. 1 or Humanities 1	3-4	Hist. 2 or Humanities 2	3-4	Hist. 52	3	Hist. 53	3
Natural Science	4	Natural Science	4	Foreign Language (if needed)*	3	Foreign Language (if needed)*	3
Foreign Language*	3	Foreign Language*	3	English 6	3	English 4 or 164	3
Journ. 1	2	Journ. 2	1	Econ. 1	3	Econ. 2	3
Phys. Ed.	1	Phys. Ed.	1	Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2	Phys. Ed. (W)	1	Phys. Ed. (W)	1
Electives	0-1			Electives as needed	–	Electives as needed	–
Max. Hr.	18		18		18		18

*Optional for advertising majors, and journalism majors with agriculture, home economics or sciences specialization may substitute 12 credit hours of advanced work in their specialization.

(D). Curriculum in Pre-Medical Technology

The curriculum which follows is designed to satisfy the course requirements for admission to the specialized and technical portion of the curriculum in Medical Technology offered by the School of Medicine.

Students are not transferred automatically from the pre-professional course (first two years) to the professional course (third and fourth years). Application for admission to the third year should be made on forms obtainable from the Office of the Assistant Registrar, Medical Center. When completed, the forms are to be returned to his office. Preference is given to residents of West Virginia.

Application should be filed before February of the second year.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1, Inorganic	4	Chem. 2, Inorganic	4
English 1, Comp. & Rhetoric	3	English 2, Comp. & Rhetoric	3
Elective*	3	Math. 3	3
Biol. or Zool. 1, General	4	Biol. or Zool. 2, General	4
Mil. or Air Sci. 1 (M)	2	Mil. or Air Sci. 2 (M)	2
Phys. Educ.	1	Phys. Educ.	1
Med. Tech. 1**	1	Med. Tech. 2**	1
	16-18		16-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 131, Organic	4	Chem. 115, Quantitative	4
English or American Lit.	3	English or American Lit.	3
Elective*	3	Elective*	3
Physics 1, Introductory	4	Physics 2, Introductory	4
Mil. or Air. Sci. 3 (M)	2	Mil. or Air Sci. 4 (M)	2
Phys. Educ. (W)	1	Phys. Educ. (W)	1
Med. Tech. 3**	1	Med. Tech. 4**	1
	16-17		16-17

*Electives: Students who plan to do graduate study should be encouraged to take foreign language as Elective. Other recommended Electives are History 1, 2, 52, or 53; Sociology; or Psychology 1. Math. 2, if required, should be taken here in the first year.

**Medical Technology 1, 2, 3, and 4 are not required subjects, but it is highly recommended that all students take these courses.

(E). Pre-Pharmacy Curriculum

The professional curriculum of the School of Pharmacy is based on two years of pre-pharmacy requirements. The pre-pharmacy requirements are as follows:

Algebra	3 hr.	Chemistry, Organic	8 hr.
Trigonometry	3 hr.	Physics	8 hr.
English Composition	6 hr.	Electives from	
Principles of Economics	6 hr.	Core Group A	12 hr.
Chemistry, General	8 hr.	Core Group B	6 hr.
Biology, General	8 hr.		
		Total	68 hr.

Students required to take Military or Air Science will be exempt from an equivalent number of hours of electives in Core Groups A and B. A "C" average is considered the minimum standard for admission.

For admission to the School of Pharmacy, formal application should be made to the Admissions Committee of the School as early as possible after February 1, but before August 1, preceding the fall term in which the student is seeking enrollment. Complete information may be obtained from the Dean of the School of Pharmacy or from the Office of the Assistant Registrar, Medical Center.

COURSES OF INSTRUCTION AND CURRICULA

INTEGRATED STUDIES

Professor Singer (Chairman) and Interdepartmental Staff.

Integrated Studies covers four main areas of knowledge and certain basic skills. In the four principal fields of knowledge, courses cut across departmental lines as follows: (1) Humanities: history, foreign languages, English language and literature, speech, art, philosophy, and music; (2) Social Studies: political science, psychology, economics and business administration, sociology, and social work; (3) Biological Sciences: zoology, botany, biology, and psychology; (4) Physical Sciences: geology, geography, chemistry, physics, mathematics, and astronomy.

In the lower division, the four introductory general courses provide a general knowledge of subjects not covered by the student's field of major interest and a perspective for later concentration in certain fields. These courses, are, in addition, recommended for the student who has not chosen a field of specialization. The student will have through these introductions to the main bodies of knowledge an opportunity to discover his real interests and aptitudes for more advanced study.

In the upper division, courses are offered that continue at an advanced level the study of important ideas and concepts in the various fields of learning. A deliberate attempt is made to secure in these courses an integrated understanding of a particular subject and its important connections with related fields. These courses frequently consider problems not encountered in sharply defined departmental or specialized courses, and they provide the student with important cross-connections between established disciplines.

Courses of Instruction

I. THE HUMANITIES

1, 2. Introductory General Course. I, II. 4 hr. per sem. This course is designed to bring to the student's attention cross sections of his civilization at those points where its development has been most significant. In accordance with this aim a substantial part of the course is its background of history, to which are added a survey of world literature, enough philosophy to acquaint the student with the main currents of Western thought, the principal developments in art and architecture, and some music. A constant attempt is made in the lectures and discussions to relate the past to the present, and to show the continuity of what we call Western Civilization.

The assigned readings are an important feature of the course, in that they supply much of the factual material. Lectures are primarily for the purpose of orientation—to help the student interpret the reading. Lectures on art, architecture, and music are illustrated. Weekly discussion periods are also an important part of the course. In them, students meet in small groups with an instructor, and an effort is made to help them understand the relations of the past to present-day problems. Through the aid of a syllabus, the course is shown in perspective in order that it may be better conceived as a whole.
Mr. Singer and Staff

141. GREAT BOOKS. (First Course). I. 3 hr. Five literary masterpieces in translation are considered in this course: Plato's *Republic,* Sophocles' *Oedipus Rex* and *Antigone,* Dante's *Divine Comedy,* Cervantes' *Don Quixote,* and Goethe's *Faust.* Taken separately and in order they represent the Greek world, the Middle Ages, the Renaissance and the Modern period. Taken as a group they illustrate the persistent conflict between the actual and the ideal in the literature of Western Civilization. Mr. Stasny

142. GREAT BOOKS. (Second Course). II. 3 hr. Five literary masterpieces, of which four are in translation, are considered in this course: Marcus Aurelius' *Meditations,* Benvenuto Cellini's *Memoirs,* Montaigne's *Essays,* Rousseau's *Confessions,* and *The Education of Henry Adams.* These evaluations of the problems of life, ranging from the Roman Empire to modern America, constitute the integrating principle of the course. Mr. Stasny

181, 182. AMERICAN CIVILIZATION. I, II. 3 hr. per sem. This course is designed to acquaint the student with the salient characteristics of American Civilization as they have developed since the planting of European colonies on this continent. Emphasis is placed on the unique contributions of successive arrivals on American shores to the making of the distinctive American culture, as evidenced in its folkways, arts, and philosophy. The central theme of the course is the manifestation of the democratic spirit in the thought and feelings of the American people. The course is open to all upper-division students.
Staff

250. UNIVERSITY SUMMER TOUR OF EUROPE. Summer. 6 hr. PR: Some cultural background in European civilization such as Humanities 1 and 2, Hist. 1 and 2, or equiv. Staff

270. CRADLE OF HISTORY TOUR OF THE NEAR EAST. Summer. 6 hr. PR: Hist. 1 and 2 or Humanities 1 and 2, or equiv. Staff

II. THE SOCIAL SCIENCES

1, 2. INTRODUCTORY GENERAL COURSE. I, II. 4 hr. per sem. The general course in social science aids the student in his preparation for citizenship by advancing his understanding of the social order. Major attention is given to an analysis of economic, political, and other social conditions now existing in the United States. A brief analysis of the place of this country in world affairs is included. The course is organized on the basis of two lectures and two discussion periods each week. Mr. Gibbard and Staff

III. THE BIOLOGICAL SCIENCES

1, 2. INTRODUCTORY GENERAL COURSE. I, II. 4 hr. per sem. Primarily for the student who is not a major in biology, the Introductory General Course deals with the basic values of biology in relation to civilization and modern culture. The course considers the organization and functions of living organisms in general, as well as the relations between these organisms and the connection with their physical environment, but emphasis throughout is placed on the importance of the human being and his relationships with other organisms.

Individual student participation is encouraged in discussion periods and in the laboratory where subject matter may require some group work with

equipment and specimens. Lectures are amplified by moving pictures and by demonstrations. (*This course is identical with Biology* 1 *and* 2, *General Biology*). Staff

207. History of Biology. I. 3 hr. PR: 1 yr. of biology or equiv. This course deals with the landmarks in the history of the development of biological knowledge. Relatively intensive studies are made of the biographies of outstanding biologists as examples of their periods. Mr. Core

208. Great Texts in Biology. II. 1 hr. PR: Biol. 2 or equiv. A study of some of the great classics in biology, such as Theophrastus' *Enquiry into Plants*, Vesalius' *Epitome*, Harvey's *Motion of the Heart and Blood*, Darwin's *Origin of Species*, and Mendel's *Experiments on Hybrid Plants*. The course is designed to acquaint the student with the historical and philosophical background of modern biology and to show how the utilization of the scientific method has resulted in the great biological discoveries. Mr. Core

IV. THE PHYSICAL SCIENCES

1, 2. Introductory General Course. I, II. 4 hr. per sem. The Introductory Course in Physical Science is intended to acquaint the student with the physical world in which he lives, and particularly with the method and philosophy of modern science in its approach to an explanation of physical reality. The course has two main objectives: to serve as orientation for those students who have not chosen their major field of interest, and to present a broad general view of the physical sciences to students whose interests lie in other fields.

Two periods each week are devoted to lectures on the application of the scientific method to the solution of specific problems in chemistry, physics, geology, and astronomy. The third period is devoted to discussion of the mathematical background required for an appreciation of modern science, and to general lectures on the methods and philosophy of science. There is an optional period of individual instruction and the answering of student questions.

The two-hour laboratory serves more to acquaint the student with the approach science takes to various problems than to confer specialized skills.

Students who have successfully completed as much as eight hours of chemistry or physics or geology cannot take Physical Science 1 and 2 for credit. Mr. Hickman and Staff

201. Physical Science for High School Teachers. S. 3 hr. Physical Science Teachers. The course includes: lecture demonstration and laboratory techniques, a study of demonstration and laboratory equipment suitable for high schools, and a review of modern developments in the physical sciences. Mr. Hickman and Staff

202. Physical Science for High School Teachers. S. 3 hr. PR: Phys. Sci. 201 or equiv. An extension of Phys. Sci. 201 to additional topics of interest to the high school teacher, such as applied organic chemistry and radio. This is the terminal course in integrated physical science for high school teachers. Mr. Hickman and Staff

221. Scientific Literature. I. 3 hr. PR: 20 hr. work in physical and/or biological sciences. Graduate study methods, evaluation of literature sources, methods of conducting a literature survey, reporting work in written and oral form. Open only to N.S.F. Institute members. Mr. Hickman

223. Physical Science Measurements. I. 3 hr. PR: 20 hr. work in Physical Science. Lecture and laboratory work in the use of the instruments employed in physical science measurements. A considerable portion of the course is devoted to a review of the necessary mathematical background. Open only to N.S.F. Institute members. Mr. Farr

ART

Professors Clarkson and Patton; Assistant Professors Drainer and Freedman; Instructors Aull and Moss.

The Department of Art offers technical courses in drawing, painting, and design; a nontechnical course in appreciation; courses in art education; and lecture courses in the history of the arts. Effort is made to provide the needs of those interested in the cultural aspects of the arts, to meet the requirements of students planning further work of a technical nature, and to enable students in Education to meet requirements for certification as art teachers.

The following program is recommended for art majors:

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Laboratory sci.	4	Laboratory sci.	4
Art 11	3	Art 12	3
Mil. or Air Sci. 1	2	Art 30	2
Phys. Ed.	1	Mil. or Air Sci. 2	2
		Phys. Ed.	1
Elective to make	18	Elective to make	18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Art 121	3	Art 122	3
Elect. Group 1	3-4	Elect. Group 1	3-4
Elect. Group 2	3-4	Elect. Group 2	3-4
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed.	1	Phys Ed.	1
Elective to make	17-18	Elective to make	17-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Art 113	3	Art 114	3
Art 105	3	Art 106	3
English 18 or 21	3	Upper Division elect. Group 3	3
Upper Division elect. Group 3	3	Upper Division elect. Group 5	3-4
Elective	6	Elective	4
	18		16-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Art elective	3	Art elective	3
Minor sequence (upper div.)	4-6	Minor sequence (upper div.)	4-6
Elective to make	18	Elective to make	18

Courses of Instruction

1. Creative Expression in Fine Arts. I, II, S. 2 hr. Primarily for Elementary Education majors. An exploratory course designed to familiarize the student with the possibilities of creative expression through graphic media; to acquaint the student with the advantages and limitations of the various media; and to investigate the adaptability of these to use at various grade levels. Miss Drainer and Staff

2. Creative Expression in the Applied Arts. I, II, S. 2 hr. A course similar to Art 1 but employing materials such as clay, plasteline, paper, felt, gasso, plaster, and the like, as a means of creative expression. Miss Drainer and Staff

11 or 111, 12 or 112. Drawing. I, II. 3 hr. per sem. Freehand drawing in pencil and charcoal. Staff

30. Appreciation of the Fine Arts. I or II. 2 hr. A study of outstanding works of art from times past as well as from the present day. Topics treated include: the materials with which the artist works; sources of the art impulse; and the relation of art to the civilization producing it. Mr. Clarkson and Staff

105, 106. Survey of Art. I, II. 3 hr. per sem. History of art from prehistoric times to the present. Mr. Patton

113, 114. Painting. I, II. 3 hr. PR: Art 11, 12. Beginning watercolor and oil. Staff

115. Scientific Drawing. I, II. 3 hr. Freehand drawing primarily for premedical and predental students. Mr. Freedman

117, 118. Painting. I, II. 3 hr. PR: Art 113, 114. Second semester watercolor and oil. Messrs. Patton, Clarkson, Freedman, and Moss

121, 122. Fundamentals of Design. I, II. 3 hr. per sem. Messrs. Clarkson, Freedman, and Moss

123. Lettering. I or II. 2 hr. Principles of design involved in lettering and their application. Mr. Patton

126. Modeling. I, II. 2 hr. PR: Consent. Introductory course in sculpture. Mrs. Aull

130. Appreciation of the Arts. I or II. 3 hr. Increasing the student's understanding and enjoyment of the arts; analytical study of selected examples of painting, sculpture, and architecture together with sufficient illustrations from music and poetry to make clear the basic unity of the arts. Mr. Patton

151, 152. Special Problems. I, II. 1-3 hr. per sem. Staff

211. Figure Drawing. I, II, S. 3 hr. PR: Art 11 or 111, 12 or 112, and/or consent. Study of the construction of the figure. Drawing from the draped and partially draped model. Mr. Freedman and Staff

213. Painting. I, S. 3 hr. PR: Art 113, 117, and consent. First semester advanced watercolor. Messrs. Clarkson, Freedman, and Moss

214. Painting. I, II, S. 3 hr. PR: Art 213 and consent. Second semester advanced watercolor. Messrs. Clarkson, Freedman, and Moss

216. Painting. II, S. 3 hr. PR: Art 114, 118, and consent. First semester advanced oil painting. Messrs. Clarkson, Freedman, and Moss

217. Painting. I, II, S. 3 hr. PR: Art 216 and consent. Second semester advanced oil painting. Messrs. Clarkson, Freedman, and Moss

220. Art and the Schools. I, II, S. 2 hr. PR: 4 hr. of art, including a minimum of 2 hr. studio. Miss Drainer

221. Administration and Supervision of Art. I, II, S. 2 hr. PR: Art 220. Mainly for administrators and school principals who wish to become informed about art programs and the philosophies underlying them. Miss Drainer

225. Secondary School Art. I or II, S. 3 hr. PR: Art 11 or 111, 12 or 112, 121, 122, 113, 114, and consent. Information and working skills desirable for the teaching of art on the secondary school level. Mr. Moss and Staff

241. Medieval Architecture. I, II, S. 3 hr. PR: Art 105, 106. A study of architecture from time of Constantine to the Renaissance. Mr. Patton

250. Renaissance Painting. I, II, S. 3 hr. PR: Art 105, 106. A study of painting in Italy from Cimebue to Tiepolo; the Renaissance in Western Europe; a brief consideration of baroque and rococo painting as outgrowth of the Renaissance. Messrs. Patton, Clarkson, and Freedman

260. Modern Painting. II, S. 3 hr. PR: Art 105, 106. Developments in painting from the French Revolution to the present day. Messrs. Patton, Clarkson, and Freedman

271. American Architecture. I, II, S. 3 hr. PR: Art 105, 106. Developments in architecture in North America from Pre-Columbian times to the present day. Emphasis will be placed on the architecture of the United States. Mr. Patton

275. Latin American Art. I or II, S. 3 hr. PR: Consent. From Pre-Columbian times to the present. Outstanding examples of the various periods will be considered. Mr. Freedman

290. Study of Original Works of Art. S. 6 hr. PR: Art 105, 106, and consent of the Department. Directed study in the museums and libraries of some urban center such as Washington or New York; a study of the architectural developments of the locality. Messrs. Clarkson, Patton, and Staff

350, 351. Special Topics. I, II, S. 1-3 hr. per sem. PR: Consent of the Department. Individual study to be determined by the student's requirements. Staff

391, 392. Thesis. I, II, S. 3 hr. per sem. PR: Approval of Student's Committee. Staff

BIOLOGY

Professors Core, Bennett, Gribble, and Norman; Associate Professors Canaris, (on contract to Egerton College, Njoro, Kenya), and Clovis; Assistant Professors Baer, Bradshaw, Clarkson, Hurlbutt, and Wickersham; Instructors Barnett, Bartholomew, Benson, Birch, Coover, Guthrie, Hertig, Jones, Montiegel, Nunley, and Williams

Laboratory Fees

A non-refundable fee is required of all students who take the following laboratory courses in Biology, Botany, and Zoology:

Course	*Per Semester*	*Course*	*Per Semester*
Biol. 1	$ 8.00	Zool. 1	$ 8.00
Biol. 2	4.00	Zool. 2	8.00
Biol. 51	4.00	Zool. 31	4.00
Biol. 211	10.00	Zool. 224	8.00
Biol. 215	8.00	Zool. 231	12.00
Biol. 221	8.00	Zool. 232	8.00
Bot. 1	8.00	Zool. 233	4.00
Bot. 2	8.00	Zool. 236	8.00
Bot. 61	4.00	Zool. 237	4.00
Bot. 67	4.00	Zool. 251	5.00
Bot. 68	4.00	Zool. 263	8.00
Bot. 104	5.00	Zool. 264	8.00
Bot. 161	4.00	Zool. 265	4.00
Bot. 171	5.00	Zool. 271	8.00
Bot. 221	4.00	Zool. 273	8.00
Bot. 231	8.00	Zool. 274	8.00
Bot. 232	8.00	Zool. 276	8.00
Bot. 235	8.00	Zool. 296	4.00
Bot. 250	8.00	Zool. 297	4.00
Bot. 256	8.00		
Bot. 325	5.00		
Bot. 374	5.00		

Students may select biology, botany, or zoology as their major subject. Biology 1 and 2 or Botany 1 and 2 will be required of students who wish to major in botany. Either Biology 1 and 2 or Zoology 1 and 2 will be required of students who elect to major in zoology. Majors in biology should take Biology 1 and 2.

Prospective majors in biology, botany, or zoology should include in their schedule of lower-division work Chemistry 1 and 2. Prospective majors in zoology should also include Chemistry 115 in the lower-division schedule.

Courses in botany and zoology (not to exceed 10 semester hours in each) may be counted toward a major in biology, provided that the student has a minimum of 6 semester hours in upper-division courses in biology.

Teacher Certification for Biology Majors

A student may meet the requirements for the A.B. degree with a major in Biology and at the same time qualify for teacher certification. The curriculum suggested is designed to include the requirements of the basic subjects prescribed for the first two years for prospective teachers. During the junior and senior years the courses required in the major and minor subjects will largely coincide with those required for first and second teaching fields for high school teachers. At the same time they will complete the required work in Education in the teacher-training program.

Suggested Curriculum for A.B. Degree With Major in Biology

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Hist. 1	3	Hist. 2	3
Biol. 1	4	Biol. 2	4
Foreign language	3	Foreign language	3
Phys. Ed. 1 (M)	1	Phys. Ed. 2 (M)	1
Phys. Ed. 3 (W)	1	Phys. Ed. 4-25 (W)	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	Women—14 Men—16		Women—14 Men—16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1	4	Chem. 2	4
Social Sci. 1	4	Social Sci. 2	4
Foreign language	3	Foreign language	3
Educ. 105	3	Educ. 106	3
Educ. 100	1	Art 130	3
Music 10	2	Phys. Ed. 102 (W)	1
Phys. Ed. 101 (W)	1	Mil. or Air Sci. 4 (M)	2
Mil. or Air Sci. 3	2		
	Women—18 Men—19		Women—18 Men—19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Physics 1	4	Physics 2	4
English 3, 4, 5, or 6	3	Math. 4	3
Chem. 106	4	Bacteriol. 141	4
Math. 3	3	Zool. 171	4
English 18	3	Health Ed. 101	2
Educ. 109	2		
	19		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Biol. 221	4	Educ. 124	6
Chem. 233	4	Educ. 150	2
Botany elective	4	Educ. 120	4
Zool. 251	4	Bot. 104	4
Biology elective	3-5	Chem. 238	4
	18-20		20

Suggested Curriculum for A.B. Degree with Major in Botany

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Bot. 1 or Biol. 1	4	Bot. 2 or Biol. 2	4
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Group 3 elective	3	Group 3 elective	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Elective	2	Elective	2
	16-18		16-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr*
Foreign language	3	Foreign language	3
Mil. or Air Sci. 4	2	Mil. or Air Sci. 4	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Physics 1	4	Physics 2	4
Chem. 1	4	Chem. 2	4
Group 1 elective	3-4	Group 1 elective	3-4
	16-18		16-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Group 2 elective (lower div.)	3	Group 2 elective	3
Group 4 elective (lower div.)	3	Chem. 115	3
Group 5 elective (upper div.)	3	Genetics 221	3
Botany (or elect.) (upper div.)	7-9	Botany (or elect.) (upper div.)	7-9
	16-18		16-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 233	4	Chem. 238	4
Botany (or elect.) (upper div.)	12-14	Botany (or elect.) (upper div.)	12-14
	16-18		16-18

Suggested Curriculum for A.B. Degree With Major in Zoology

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Zool. 1 or Biol. 1	4	Zool. 2 or Biol. 2	4
English 1	3	English 2	3
Chem. 1	4	Chem. 2	4
Math. 3	3	Math. 4	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Art 115	3	Chem. 115	3
Physics 1	4	Physics 2	4
Foreign language	3	Foreign language	3
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Group 1 elect.	3-4	Group 1 elect.	3-4
Electives	2-4	Electives	2-4
	18		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Group 2 elective	3	Group 2 elective	3
Chem. 233	4	Foreign language	3
Foreign language	3	Botany	4
Botany	4	Chem. 238	4
Zool. 251	4	Electives (upper division)	3-5
	18		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 163	4	Zool. 232	5
Zool. 231	5	Zool. 274	4
Electives (upper division)	4	Electives (upper division)	7-9
Zool. 273	4		
	18		18

Candidates for the A.B. degree in Zoology must complete the following minimum number of credit hours in the subjects listed in addition to the University and College of Arts and Sciences general requirements: Mathematics, 6 hr. (must include Math. 3 and 4); Chemistry, 23 hr. (must include Chem. 1, 2, 115, 163, 233, 238); Physics, 8 hr.; Art 115; Biological Sciences, 38 hr. (must include Zool. 1 and 2 [Biol. 1 and 2 may be substituted], Zool. 231, 232, 251, 273, and 274, and 8 hr. of botany). A total of 128 semester hours is necessary for this degree, of which 124 hours are in subjects exclusive of required Military Science or Air Science, required Physical Education, and English 0. A minimum of 58 upper-division hours is also necessary.

Courses of Instruction

BIOLOGY

Lower Division

1, 2. General Biology. I, II. 4 hr. per sem. General introductory course in Biology. Staff

51. Microbiology. I. 3 hr. An introduction to the study of microorganisms. Primarily for medical secretary students. Mr. Bennett

Upper Division

191. Honors Course. II. 3 hr. PR: Second semester of junior year, recommendation of adviser. For departmental majors only. Supervised reading and investigation. Staff

192. Honors Course. I. 3 hr. PR: Biol. 191. Supervised reading and investigation. Staff

193. Honors Course. II. 3 hr. PR: Biol. 192. A thesis embodying the results of the work done in Biol. 191 and 192. Staff

203. Natural History. S. 3 hr. PR: General biology or equiv. Lectures, demonstrations, and field trips designed to provide a brief survey of certain aspects of general biology suitable for elementary and high schools. Mr. Benson

204. Biology Workshop. S. 3 hr. PR: Biol. 2 or equiv. Primarily for high school teachers of biology. Lectures, discussions, and trips to various campus facilities are designed to meet the needs of the students enrolled. (Not open to majors in biology). Staff

205. Principles of Evolution. I, S. 3 hr. PR: Biol. 2, Bot. 2, or Zool. 2. An introduction to the study of evolution. Mr. Bennett

206. Modern Concepts in Biology. S. 2 hr. PR: Biol. 2 or equiv. A course designed to acquaint the advanced student or teacher with the latest methods and knowledge in the field of biology. Mr. Clovis

207. History of Biology. I. 3 hr. PR: Biol. 2. History of the development of biological knowledge, with philosophical and social backgrounds. Mr. Core

208. Great Texts of Biology. II. 1 hr. PR: Biol. 2 or equiv. A study of some of the great classics in biology, such as Theophrastus' *Enquiry Into Plants,* Vesalius' *Epitome,* Harvey's *Motion of the Heart and Blood,* Darwin's *Origin of Species,* and Mendel's *Experiments on Hybrid Plants.* Mr. Core

209. The Literature of Biology. I. 1 hr. PR: Biol. 2 or equiv. A consideration of the sources and forms of the literature, the development of bibliographies, and the preparation of scientific papers. Mr. Coover

210. Biological Science for High School Teachers. S. 3 hr. PR: Biol. 2 or equiv. A study of biological demonstrations and experiments suitable for high school biology. Mr. Clovis

211. Microtechnique. I. 3 hr. PR: Biol. 2, Bot. 2, or Zool. 2, or equiv. Theory and practice of making microscope preparations. Mr. Hertig

212. Biological Preparations. S. 3 hr. PR: Biol. 1. Methods for the preparation of microscope slides and other demonstration materials for high school biology classes. Emphasis will be on procedure using equipment and reagents commonly available to the teacher. Staff

215. Cytology. II. 4 hr. PR: Biol. 2 or equiv. Cells, their structure and functions Mr. Bennett

221. General Ecology. I, II. 4 hr. PR: Biol. 1-2 or equiv., plus 4 hr. upper division. The interactions among and the intra-actions within biotic communities are emphasized as the inter-relationships of animals with one another and with their environment are studied to illustrate basic ecological concepts and unifying principles. Mr. Bradshaw

Graduate Division

311. Advanced Microtechnique. II. 1-3 hr. PR: Consent. Mr. Hertig

321, 322. SEMINAR IN ECOLOGY. I, II. 2 hr. per sem. PR: Bot. 221 or Zool. 221 and consent. Selected topics on relations of organisms to environment and on communities of organisms. Staff

376, 377. SEMINAR IN PHYSIOLOGY. I, II. 2 hr. per sem. PR: Zool. 273 or Bot. 273 and consent. Selected topics on functions common to all organisms. Staff

BOTANY

Lower Division

1, 2. GENERAL BOTANY. I, II. 4 hr. per sem. Introductory course in botany. Mr. Clarkson

61. SYSTEMATIC BOTANY. I. 2 hr. Identification of vascular plants. Primarily for students in Forestry. Mr. Clovis

67. DENDROLOGY. I. 4 hr. PR: Biol. 2. Classification and distribution of the timber trees of the United States. Primarily for students in Forestry. Mr. Core and Mr. Guthrie

Upper Division

161. SYSTEMATIC BOTANY. II. 4 hr. The identification and classification of vascular plants. Mr. Clovis

171. PLANT PHYSIOLOGY. I, II. 3 hr. PR: Inorganic chemistry. Physicochemical processes of plants. Mr. Baer

191. HONORS COURSE. II. 3 hr. PR: Second sem. of junior year and recommendation by adviser. For departmental majors only. Supervised reading and investigation. Staff

192. HONORS COURSE. I. 3 hr. PR: Bot. 191. Supervised reading and investigation. Staff

193. HONORS COURSE. II. 3 hr. PR: Bot. 192. A thesis embodying the results of the work done in Bot. 191 and 192. Staff

201, 202. SEMINAR. I, II. 1 hr. Topics of general interest to botanists are considered. Miss Bartholomew

204. THE PLANT KINGDOM. I, II, S. 4 hr. A survey of the plant kingdom. Mr. Clarkson

218. ECONOMIC BOTANY. II. 3 hr. PR: Biol. 2 or Bot. 2. Plants from the standpoint of their value to man. Mr. Clarkson

221. PLANT ECOLOGY. I. 4 hr. PR: Biol. 2 or Bot. 2. Environmental relationships of plants. Mr. Baer

224. PLANT COMMUNITIES. S. 3 hr. PR: Biol. 2 or equiv. Field studies in ecology. Staff

227. GEOGRAPHIC BOTANY. I, S. 2 or 3 hr. PR: Bot. 2 or Biol. 2. Study of plant groupings and world-wide distribution of plants. Mr. Core

231. PLANT MORPHOLOGY. I. 4 hr. PR: Biol. or Bot. 2. Development and structure of algae and fungi. Mr. Bennett

232. PLANT MORPHOLOGY. II. 4 hr. PR: Biol. 2 or Bot. 2. Development and structure of bryophytes and vascular plants. Mr. Bennett

235. PLANT ANATOMY. I. 4 hr. PR: Bot. 2 or equiv. Anatomy of seed plants. Mr. Bennett

250. FRESH-WATER ALGAE. I. 4 hr. PR: Biol. 2 or equiv. Taxonomy, cytology, and ecology of aquatic, aerial, and land forms of fresh-water algae. Mr. Bennett

255. BRYOPHYTES. II. 2 hr. PR: Bot. 2 or Biol. 2. Identification of liverworts and mosses. Staff

256. Vascular Cryptogams. II. 4 hr. PR: Bot. 1, 2 or Biol. 1, 2. Taxonomy, anatomy, cytology, and ecology of the club mosses, horsetails, and ferns. Mr. Bennett

261. Advanced Systematic Botany. I. 3 hr. PR: Bot. 161 or equiv. Taxonomy of pteridophytes, gymnosperms, and monocotyledons. Mr. Clovis

262. Advanced Systematic Botany. II. 3 hr. PR: Bot. 161 or equiv. Taxonomy of dicotyledons. Mr. Clovis

263. Taxonomy of Vascular Plants. S. 3 hr. Field studies in the taxonomy of higher plants. Staff

265. Aquatic Seed Plants. I. 3 hr. PR: Biol. 2 or equiv. Classification, ecology, and economic importance of aquatic seed plants. Mr. Bennett

266. Flora of West Virginia. II, S. 3 hr. PR: Biol. 2 or equiv. A consideration of the native plant life of the State. Mr. Core

268. Dendrology. II. 2 hr. PR: Biol. 2. Classification and distribution of the important trees of the United States. Mr. Guthrie

296, 297. Special Topics. I, II. 1-4 hr. per sem. PR: Consent. Critical studies of topics to be assigned by the instructor. Staff

Graduate Division

316. Cytotaxonomy. I. 3 hr. PR: Bot. 2 or Biol. 2 and consent. The determination of phylogenetic relationships by cytological and taxonomic methods. Offered in 1965-66 and alternate years. Mr. Bennett

325. Experimental Plant Ecology. II. 2-4 hr. PR: Bot. 161, and Bot. 221 or equiv. Advanced studies concerning the environmental relationships of plants; extensive field trips. Mr. Baer

331. Plant Embryology. I. 2 hr. PR: Biol. 2 or Bot. 2 and consent. Gametogenesis, syngamy, and embryo development in vascular plants. Mr. Bennett

351, 352. Problems in Plant Taxonomy. I, II. 1-6 hr. PR: Bot. 261, 262, or equiv. Staff

368. Agrostology. II. 2 hr. PR: Bot. 161 or equiv. Taxonomy of grasses. Mr. Clovis

374. Advanced Plant Physiology II. 3 hr. PR: Bot. 171 or consent. Advanced studies of plant processes and physiological experimentation. Mr. Baer

391, 392, 393, 394. Research. I, II. 1-6 hr. Staff

ZOOLOGY

Lower Division

1, 2. General Zoology. I, II. 4 hr. Combines a study of the chief groups of animals in evolutionary sequence with introductions to other zoological subjects, including cytology, physiology, biochemistry, genetics, embryogeny, and ecology. Primarily for preprofessional students in medical and allied disciplines and for those whose major interests are animals. Students having credit for Biol. 1 and 2 may not receive credit for this course. Mr. Hurlbutt, Mr. Birch, and Staff

31. Human Anatomy. I. 4 hr. PR: Consent. Elementary anatomy. Mr. Gribble

Upper Division

191. Honors Course. II. 3 hr. PR: Second semester of junior year, recommendation by adviser. For departmental majors only. Supervised reading and investigation. Staff

192. Honors Course. I. 3 hr. PR: Zool. 181. Supervised reading and investigation. Staff

193. Honors Course. II. 3 hr. PR: Zool. 192. A thesis embodying the results of the work done in Zool. 191 and 192. Staff

210. Animal Behavior. I. 3 hr. Facts and principles of individual and group behavior. Staff

222. Field Studies of Invertebrates. S. 3 hr. Taxonomy and ecology of the invertebrates. Mr. Birch

223. Field Studies of Vertebrates. S. 3 hr. Taxonomy and ecology of the vertebrates. Mr. Birch

224. Limnology. I. 5 hr. PR: Zool. 2 or equiv. Physical and biological characteristics of inland waters with an introduction to principles of biological productivity. Mr. Benson

231. Comparative Anatomy. I. 5 hr. PR: Zool. 2 or equiv. Organs and systems of various vertebrates, together with other facts of interest concerning these animals. Mr. Gribble, Miss Montiegel, and Miss Williams

232. Vertebrate Embryology. II. 5 hr. PR: Zool. 2 or equiv. Introductory study of developments of vertebrates, based on frogs, fowl, and mammals. Mr. Gribble, Miss Montiegel, and Miss Williams

233. Comparative Histology. II. 4 hr. PR: Zool. 231 and consent. Limited to seniors and graduate students. A comparative study of tissues of the vertebrates. Miss Williams

235. Comparative Developmental Anatomy. II. 3 hr. PR: Zool. 231. Anatomy and development of the organs and systems of various vertebrates. Mr. Gribble

236. Comparative Neuroanatomy. II. 4 hr. PR: Zool. 2, 231 or consent. Comparative study of development and anatomy of the nervous systems of vertebrates. Miss Montiegel

237. Osteology. I. 2 hr. PR: Zool 2 or equiv. Development and anatomy of the skeleton. Miss Williams

250. Animal Systematics. I. 2 hr. PR: Zool. 2 or equiv. Principles and practices in animal taxonomy. Mr. Benson

251. Invertebrate Zoology. I. 4 hr. PR: Zool. 2 or equiv. Advanced study of animals without backbones. Mr. Birch

255. Introduction to Human Parasitology. II. 4 hr. PR: Zool. 2 or equiv. Biological aspects of parasites and other animals of medical importance. Staff

263. Ichthyology. II. 3 hr. PR: Zool. 2 or equiv. Ecology, life histories, taxonomy, and distribution of fishes. Mr. Benson

264. Fisheries Biology. II. 4 hr. PR: Zool. 2 or equiv. Fisheries management, emphasizing study of age and growth, population techniques, and concept of yield. Mr. Benson

265. Ornithology. II. 3 hr. PR: Zool. 1 or equiv., consent. Field and laboratory studies on identification, migration, protection, nesting, and food habits of birds. Mr. Birch

271. Human Physiology. I, II. 4 hr. An introductory course in the functions of man. Messrs. Norman, Wickersham, and Coover

272. Physiology of the Endocrines. II. 4 hr. PR: Comparative anat., or vertebrate embryology, and organic chem. The regulation of the organs of internal secretion, the mechanisms of action of the hormones produced, and the experimental techniques used in the study of the endocrine system. Mr. Wickersham

273, 274. Cellular Physiology. I, II. 4 hr. per sem. PR: Biol. 2 or Zool. 2, Chem. 238, and Physics 2 or equiv. A study of molecular machinery of the cell and of the functions common to all forms of life. Mr. Norman

276. Comparative Physiology. I. 4 hr. PR: Zool. 273 or equiv. A study of the diverse ways in which different kinds of animals meet their functional requirements. Mr. Wickersham

Graduate Division

Zoology 331-339, inclusive, are offered as available topics for special study in the areas listed. Students should not enroll for these courses without consent of instructor.

331. Mammalian Anatomy. 3 hr. PR: Zool. 231, 232, 233, 235, 236, and 237, and consent. The study of the anatomy of selected animals from the regional and sectional approach. Mr. Gribble

332. Anatomy of the Integument. 2 hr. PR: Zool. 231, 232, 233, 234, and 235, and consent. An advanced study of the gross, developmental, comparative and microscopic anatomy of the integument and its derivatives. Mr. Gribble

334. Anatomy of the Circulatory and Respiratory Systems. 3 hr. PR: Zool. 231, 232, 235, and consent. An advanced study of the gross, developmental and comparative anatomy of the circulatory and respiratory systems. Mr. Gribble

335. Anatomy of the Urogenital System. 3 hr. PR: Zool. 231, 232, and 235, and consent. An advanced study of the gross, developmental and comparative anatomy of the genital and urinary systems. Mr. Gribble

336. Advanced Comparative Neuroanatomy. 3 hr. PR: Zool. 231, 232, 233, and 236, and consent. An advanced study of the gross, microscopic, developmental and comparative anatomy of the nervous system. Mr. Gribble

337. Advanced Osteology. 3 hr. PR: Zool. 231 and 237, and consent. The study of the gross, microscopic, developmental, and comparative anatomy of the skeleton. Mr. Gribble

338. Analogies and Homologies. 3 hr. PR: Zool. 231, 232, 233, 235, 236, 237, 331, 334, 336, and 337, and consent. A detailed study of the analogies and homologies as found in the vertebrates. Mr. Gribble

339. Anomalies and Variations. 3 hr. PR: Zool. 231, 232, 233, 235, 236, 237, 331, 334, 335, 336, 337, and 338, and consent. A detailed study of the types, causes, results and frequency of vertebrate anatomical and developmental anomalies and variations. Mr. Gribble

351. Advanced Invertebrate Zoology. I, II. 1-4 hr. PR: Zool. 251 and consent. Mr. Birch

391, 392, 393, 394. Research. I, II. 1-6 hr. Staff

396, 397. Special Topics. I, II. 1-3 hr. per sem. Critical studies to be determined according to the student's requirements. Staff

CHEMISTRY

Professors Collett, Gibson, J. L. Hall, Hickman, Lazzell, and Muth; Associate Professors Graybeal, G. A. Hall, Humphrey, Paul, and Popovich; Assistant Professors MacDowell and Winston; Instructors Alfred, Jones, Morrison, Robertson, and Rohr.

Laboratory Fees

A non-refundable fee is required of all students who take the following laboratory courses in Chemistry:

Course	*Per Semester*	*Course*	*Per Semester*
Chem. 1	$10.00	Chem. 238	$16.00
Chem. 2	10.00	Chem. 239	16.00
Chem. 105	12.00	Chem. 243	16.00
Chem. 106	12.00	Chem. 244	16.00
Chem. 115	12.00	Chem. 258	16.00
Chem. 131	12.00	Chem. 259	16.00
Chem. 141	12.00	Chem. 264	16.00
Chem. 142	12.00	Chem. 270	16.00
Chem. 163	12.00	Chem. 280	16.00
Chem. 170	16.00	Chem. 311	16.00
Chem. 202	16.00	Chem. 395	16.00
Chem. 209	16.00	Chem. 396	16.00
Chem. 210	16.00	Chem. 397	16.00
Chem. 214	16.00	Chem. 398	16.00
Chem. 215	16.00	Physical Science 1	10.00
Chem. 233	16.00	Physical Science 2	10.00

NOTE: A charge is made for excessive breakage in addition to the non-refundable fee.

Chemistry 1 and 2 or Chemistry 3 and 4 are prerequisite to all other courses in chemistry. Chemistry majors are required to take Chemistry 1, 2, 105 and 115, or Chemistry 3 and 4, and the following: Chemistry 201, 209, 214, 233, 238, 258, 259, 260, and 261; Mathematics 116 and 117; Physics 11 and 102, or the equivalent.

Bachelor of Science in Chemistry

The Bachelor of Science degree is designed for those students who desire to qualify for professional positions in industry and governmental services as well as those who plan to do graduate work in chemistry. Requirements for the Bachelor of Science degree are listed below. Electives must be chosen so as to satisfy the distribution of electives required for the A.B. degree. A total of 136 credit hours is required of which a minimum of 126 hours must be established in subjects exclusive of credits earned in required Physical Education, required Military Science or Air Science, English 0, and Math. 2.

Bachelor of Arts in Chemistry

The course requirements for the Bachelor of Arts degree with a major in chemistry are the same as for the Bachelor of Science degree in Chemistry with the following exceptions: (1) Chemistry 273 is not required; (2) the total including required Military Science or Air Science and Physical Education for men is 134 semester hours and for women the total is 128 semester hours; (3) nine semester hours of general electives must be substituted for chemistry electives.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 3*	5	Chem. 4*	5
Math. 3	3	English 2	3
Math. 4	3	Math. 15	4
English 1	3	Mil. or Air Sci. 2	2
Mil. or Air Sci. 1	2	Phys. Educ.	1
Phys. Educ.	1	Elec. (A and S)	3
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 233	4	Chem. 238	4
Physics 11	4	Physics 102	4
German 1	3	German 2	3
Math. 116	4	Math. 117	4
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
	17		17

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 214	3	Chem. 209	3
Chem. 258	1	Chem. 259	2
Chem. 260	3	Chem. 261	3
Chem. 273	2	German 122	3
German 121	3	Elec. (A and S)	3
Elec. (A and S)	3	Elec. (A and S)	3
Elec. (A and S)	3		
	18		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 201	3	Chem. Electives**	6
Chem. Electives**	4	Electives	10
Electives	9		
	16		16

*Chemistry 1, 2, 105 and 115 will be required for those students not qualified for Chemistry 3 and 4.

**Must include at least one laboratory course in a field other than organic chemistry.

A second language, French or Russian, is recommended. Students desiring to pursue an honors program may include 4-6 hr. of Chemistry 245 and 246 as chemistry electives.

Courses of Instruction

Lower Division

1. General Chemistry. I, II. 4 hr. Beginning course in chemistry. Not open to students in English 0 unless qualified for Math. 3. Staff

2. General Chemistry. I, II. 4 hr. PR: Chem. 1. Completes one year of general chemistry. Staff

3. General Chemistry. I. 5 hr. PR: High school chemistry and concurrent enrollment in Math. 3, or more advanced mathematics. Primarily for students in pre-chemistry and chemical engineering. Staff

4. General Chemistry. II. 5 hr. PR: Chem. 3. Primarily for students in pre-chemistry and chemical engineering. Staff

105. Qualitative Analysis. I. 4 hr. PR: Chem. 2. Required of students whose major is chemistry unless Chem. 4 has been completed. Recommended for premedical and predental students. Mr. Gibson and Miss Paul

115. Quantitative Analysis. I, II. 3 hr. PR: Chem. 2. For premedical, predental and premedical technology students. Required of chemistry majors unless Chem. 4 has been completed. Staff

131. Organic Chemistry. I. 4 hr. PR: Chem. 2. For students in agriculture and home economics. 3 lect., 1 lab. Mr. Winston

163. Physical Chemistry. I. 4 hr. PR: Chem. 2. Required of premedical and predental students. Recommended for geology majors and other non-chemistry majors. 3 lect., 1 lab. Mr. G. A. Hall

Upper Division

141, 142. Assigned Topics. I, II. 1-3 hr. PR: Consent. Individual investigations under supervision of instructor. Staff

170. Glass Working and Related Laboratory Techniques. II. 2 hr. PR: Chemistry major or consent. 1 lect., 1 lab. Offered in alternate years. Mr. Graybeal

201. Intermediate Inorganic Chemistry. I. 3 hr. PR: Chem. 261 or concurrent enrollment. Required of chemistry majors. Staff

202. Inorganic Syntheses. I. 2 hr. PR: Chem. 4 or Chem. 1, 2, and 115. Staff

209. Intermediate Analytical Chemistry. II. 3 hr. PR: Chem. 261 or concurrent enrollment. Required of chemistry majors. Staff

210. Instrumental Analysis. I. 3 hr. PR: Chem. 260 or consent. Staff

214. Qualitative Organic Analysis. I. 3 hr. PR: Chem. 238. Required of chemistry majors. Recommended course following Chem. 238. Mr. Muth

217. Polymer Chemistry. II. 2 hr. PR: Chem. 238, 261. Mr. Winston

233. Organic Chemistry. I, II. 4 hr. PR: Chem. 4 or 115. Required of students who major in chemistry, pharmacy, premedicine, predentistry and chemical engineering. 3 lect., 1 lab. Mr. Lazzell and Mr. Muth

238. Organic Chemistry. II. 4 hr. PR: Chem. 233. Continuation of Chem. 233. 3 lect., 1 lab. Mr. Lazzell and Mr. Popovich

239. Organic Synthesis. II. 2 hr. PR: Chem. 238. Staff

243, 244. Selected Topics. I, II. 1-3 hr. PR: Consent. Individual investigations under supervision of instructor. Staff

245, 246. Honors Course. I, II. 1-3 hr. PR: Consent. Research for students in the honors program. Staff

247. Stereochemistry. I. 2 hr. PR: Chem. 238, 261, or consent. Open to seniors. Mr. Winston

258. Physical Chemistry Laboratory. I. 1-2 hr. PR: Chem. 260 or concurrent enrollment. Required of majors in chemistry. Mr. Collett

259. Physical Chemistry Laboratory. II. 1-2 hr. PR: Chem. 258, 260, and 261 or concurrent enrollment. Required of all majors in chemistry. Mr. Collett

260. Physical Chemistry. I. 3 hr. PR: Chem. 233, Physics 102, Math. 117. Required of students who major in chemistry or chemical engineering. Mr. Collett

261. Physical Chemistry. II. 3 hr. PR: Chem. 260. A continuation of Chem. 260. Mr. Collett

262. Colloid and Surface Chemistry. II. 2 hr. PR: Physical chemistry or concurrent enrollment. Mr. G. A. Hall

264. Physical Chemistry. II. 4 hr. PR: 11 hr. of college chemistry. For non-chemistry graduate students, particularly teachers of science in public schools. 3 lect., 1 lab. Mr. G. A. Hall

270. Practical Infrared Spectroscopy. II. 3 hr. PR: Chem. 238 or concurrent enrollment. A practical course for students in chemistry and related fields who may use infrared spectroscopy as a tool in research and applied science. Mr. Humphrey

273. Chemical Literature. II. 2 hr. PR: Chem. 238. Study of procedures used for search of scientific literature. Mr. Hickman

277. Chemistry of Natural Products. II. 2 hr. PR: Chem. 238, 261 or consent. The chemistry of representative members of the principal groups of terpenoids. Offered in alternate years. Mr. MacDowell

280. Electrochemistry. II. 3 hr. PR: Chem. 238, 261. 1 lect., 2 labs. Mr. Collett

282. Chemistry of Natural Products. II. 2 hr. PR: Chem. 238 or consent. The chemistry of representative members of the principal groups of alkaloids. Offered in alternate years. Mr. MacDowell

285. Nuclear Chemistry. II. 3 hr. PR: Chem. 4 or equiv., Physics 102. Fundamentals of radioactivity as applied to chemistry and discussion of tracer applications. Staff

286. Introductory Molecular Structure. II. 3 hr. PR: Chem. 260. An introduction to the quantum theory of chemical bonding and discussion of experimental methods for determining molecular structure and bond properties. Mr. Graybeal

289. Chemical Thermodynamics. I. 3 hr. PR: Chem. 261, Math. 117. Staff

Graduate Division

301. Advanced Inorganic Chemistry. I. 3 hr. PR: Chem. 261. Required of all graduate chemistry majors. Mr. Hickman

302. Advanced Inorganic Chemistry. II. 3 hr. PR: Chem. 301. Mr. Hickman

311. Research Techniques. I. 3 hr. PR: Chem. 261. Introduction to common research techniques. Staff

343. Advanced Organic Chemistry. I. 3 hr. PR: Chem. 238 or equiv. Required of all graduate chemistry majors. Mr. Muth

344. Advanced Organic Chemistry. II. 3 hr. PR: Chem. 343. Staff

347. Physical Organic Chemistry. I. 2 hr. PR: Chem. 343. Staff

348. Advanced Organic Chemistry. II. 2 hr. PR: Chem. 344 or consent. Discussion of recent topics in organic chemistry. Staff

350. Heterocyclic Chemistry. II. 2 hr. PR: Chem. 343. Mr. Muth

367. Advanced Physical Chemistry. I. 3 hr. PR: Chem. 261. Required of all graduate chemistry majors. Mr. J. L. Hall

368. Advanced Physical Chemistry. II. 2 hr. PR: Chem. 289. Staff

369. Chemical Kinetics. II. 2 hr. PR: Chem. 261 and 286. Mr. G. A. Hall

370. Quantum Chemistry. I. 3 hr. PR: Chem. 286 or consent. Discussions of the development and significance of quantum mechanics with application of chemical problems. Mr. Humphrey

371. Theoretical Chemistry. II. 3 hr. PR: Chem. 368 and 370. Staff

391, 392. Journal Meeting and Seminar. I, II. 1 hr. per sem. Required of students working for graduate degrees with a major in chemistry. Recommended as a minor for students from other departments. Staff

395, 396. Special Topics. I, II. 1-3 hr. per sem. Chemistry of carbohydrates, chemical microscopy, crystallography, coordination compounds, unfamiliar oxidation states, inorganic preparations, inorganic polymers, infrared, microwave, and radio-frequency spectroscopy are suggested topics. Staff

397, 398, 399. Research. I, II. 1-10 hr. Six hours are required for the Master's Degree. Staff

ECONOMICS

Professors Campbell, Alvis, L. Fishman, Roberts, and Thompson; Associate Professor Gavett; Assistant Professors Leyden, Mischaikow, Newhouse, and Stocks; Visiting Assistant Professor Mattis; Instructor Cecil; Lecturers Cross, B. Fishman, and Parsons.

Since 1952 the College of Commerce has offered all courses in Economics and has granted the B.S. degree in Economics, while the College of Arts and Sciences has continued to grant the A.B. degree in this field.

The course of study leading to the B.S. degree is aimed primarily at preparing the student for a career as an economist in business or government. Consequently, the student selecting this program is required to complete courses in business administration, as well as courses in economics. About one-half of his upper-division electives must be taken in courses offered by the College of Commerce.

The program leading to the A.B. degree in Economics is designed for students who wish to combine fundamental training in economics with a liberal arts education. Of the total of 128 hours required for graduation, 30 or more credit hours are available for elective subjects. There are two principal requirements which apply to the A.B. program, but do not apply to the B.S. program. These are the requirements that the student must complete 12 hours in a foreign language and 9 upper-division hours in a minor field other than economics.

A candidate for the A.B. degree with a major in Economics must complete a minimum of 128 semester hours for graduation. English 0 and Mathematics 2, if taken, may not be counted in this total, and required courses in Physical Education and required courses in basic Military Science or Air Science may be counted only to the extent of 4 hours. He must also complete at least 27 semester hours in upper-division economics courses. A minimum of 58 semester hours must be completed in the upper-division level. Of these, not less than 9 upper-division hours must be earned in a minor field approved by the candidate's adviser.

Lower-Division Program. The curriculum of the lower division is designed to provide a background for the study of Economics. The following courses are required and students are expected to complete them within the first two years in residence at the University:

FIRST YEAR	Hr.	SECOND YEAR	Hr.
English 1 and 2—Composition	6	Economics 1 and 2—Principles	6
Foreign Language	6	Foreign Language	6
History 1 and 2—World Civilization or Humanities 1 and 2	6-8	History 52 and 53—Amer. History or Pol. Sci. 2 and 120	6
Laboratory Science*	8	Mathematics 3—College Algebra	3
Mil. or Air Science 1 and 2	4	Mil. or Air Science 3 and 4	4
Phys. Educ.—General Program	2	Phys. Educ.—Women's Program	2
Electives—Women**	3	Speech 11—Public Speaking	3
		Electives—Men**	8
		Electives—Women**	10
TOTAL	32-34	TOTAL	36

*A laboratory science may be chosen from among biology, botany, chemistry, geology, physics, physical science, or zoology.

**Electives must be taken during the four-year program to satisfy the University Core Curriculum Requirements. See page 93 for a complete explanation of requirements.

Upper-Division Program. An Economics major must complete a minimum of 27 upper-division hours in Economics, including the following courses:

Econ. 111—Money and Banking
Econ. 125—Statistics
Econ. 211—Micro Economic Analysis
Econ. 212—Macro Economic Analysis
Econ. 222—History of Economic Thought
Econ. 241—Public Finance

Thus, in addition to the above required courses, the candidate must complete a minimum of 9 semester hours of upper-division elective courses in Economics.

Courses of Instruction

Lower Division

1. Principles of Economics. I, II. 3 hr. PR: Sophomore standing. Principles of resource allocation, income, output and price determination under different competitive conditions; money, banking, and monetary policy; national income, unemployment, and fiscal policy; taxation and government spending; international economics, underdeveloped areas, and comparative economic systems. Staff

2. Principles of Economics. I, II. 3 hr. PR: Econ. 1. A continuation of Economics 1. Staff

*Upper Division**

111. Money and Banking. I, II. 3 hr. Our system of monetary and banking arrangements, viewed in relation to functioning of the economic system as a whole. Mr. Alvis and Mr. Fishman

115. Labor Economics. I, II. 3 hr. An introduction to labor economics and labor relations in industry, including the interaction of economic forces, union policies, personnel practices, and labor law. Mr. Stocks and Mr. Gavett

125. Statistics. I, II. 3 hr. PR: Math. 2 or 3. Basic statistical methods employed in collection, presentation, analysis, and interpretation of business and economic data such as analysis of frequency distribution, time series, inference, index numbers, and correlation. Mr. Mischaikow

*Economics 2 is prerequisite to all upper-division courses in economics.

205. Current Economic Problems. S. 3 hr. PR: Econ. 1 and 2 or consent. For students in Education only. A course designed to acquaint public school teachers with reliable source material in economics and to instruct them in studying current economic problems. Mr. Alvis and Mr. Campbell

210. Comparative Economic Systems. I or II. 3 hr. Structure and processes of existing economic systems throughout the world including review of basic principles of free enterprise, socialistic, communistic, and fascistic societies. Comprehensive analysis based on current and recent experiments in these economies. Mr. Thompson

211. Micro Economic Analysis. I. 3 hr. A study of price and output determination and resource allocation in the firm under various competitive conditions. Mr. Thompson

212. Macro Economic Analysis. II. 3 hr. An analysis of the forces which determine the level of income, employment, and output. Particular attention is given to consumer behavior, investment determination, and government fiscal policy. Mr. Fishman and Mr. Stocks

217. Trade Unionism. I or II. 3 hr. PR: Econ. 115 or consent. An analysis of the structure, government, attitudes, and policies of organized labor; the implications of union policy. Mr. Gavett

218. Collective Bargaining. I or II. 3 hr. PR: Econ. 115 or consent. Theory and practice of collective bargaining; including contract issues, types of relationships, and the role of government policy. Mr. Gavett

219. Economics of Wages. I or II. 3 hr. PR: Econ. 115 or consent. The determination of wage levels and structure; the functioning and organization of labor markets. Mr. Gavett

220. Introduction to Quantitative Analysis. I or II. 3 hr. PR: Econ. 125. Study of the principal mathematical techniques employed in economic analysis; an introduction to econometrics. Mrs. Fishman

222. History of Economic Thought. II. 3 hr. Economic ideas in perspective of historic development. Mr. Thompson

225. Transportation. I. 3 hr. Development of an inland transportation system and relations and policies of transport agencies. Mr. Campbell

230. Public Utilities. II. 3 hr. Development of regulation; economics of valuation and rate making. Mr. Campbell

235. Economic Growth and Fluctuations. I or II. 3 hr. PR: Econ. 125 or consent. Industrial fluctuations; causes and possible remedies. Mr. Fishman and Mr. Mischaikow

241. Public Finance. I or II. 3 hr. Governmental fiscal organizations and policy; taxes and tax systems with particular emphasis upon the Federal Government and the State of West Virginia. Mr. Alvis

245. Government and Business. I or II. 3 hr. Government in its role of adviser and umpire; analysis of governmental policies and practices affecting business. Mr. Newhouse

250. International Economics. I or II. 3 hr. Development of trade among nations; theories of trade; policies, physical factors, trends, and barriers in international economics. Mr. Alvis and Mr. Mischaikow

251. Economic Development. I or II. 3 hr. A comprehensive study of the problems, changes, and principal policy issues faced by non-industrialized countries in the process of economic development. Mr. Mischaikow

255. Regional Economics. I or II. 3 hr. An analysis of the factors that promote or deter the economic growth of a region, with emphasis on such matters as population shifts, economic base studies, industrial location analyses, input-output techniques, regional income estimation, local miltiplier and cycle concepts, and the role of government in regional growth. Mr. Stocks

256. Advanced Statistics. II. 3 hr. PR: Econ. 125 or equiv. An advanced approach to statistical analysis with emphasis on probability, inference, and multi-varied statistical techniques. Mr. Mischaikow

301. Managerial Economics. II. 3 hr. An analysis of markets and the problems of management in appraising business conditions and in adjusting to changes in production demand, costs, level of output, and profits. Mr. Campbell

302. Research and Reports. I. 3 hr. A study of sources of business information and research procedures, with application in the preparation of reports. Mr. Coleman and Mr. Leyden

319. Seminar in Economics. II. 3 hr. Mr. Fishman

320. Quantitative Analysis. II. 3 hr. PR: Econ. 220. Econometrics and an examination of mathematical models employed in economic analysis, such as linear programming, input-output analysis, game theory, and statistical decision making. Staff

395. Thesis in Economics. I, II. 1-6 hr. Staff

ENGLISH LANGUAGE AND LITERATURE

Professors Brawner, Bishop, Draper, Foster, and Gainer; Associate Professor Pettigrew; Assistant Professors Buswell, Hicks, Johnston, Page, and Pitts; Instructors Ashburn, Barlow, Berkley, Board, Bonar, Bondurant, Chin Quee, Coffron, Davis, Dawson, Dowdell, Ehle, Futrell, Gaskins, Howard, Huzzey, Hypes, Law, Mankins, Milum, Modlin, Prendergast, Rousseau, Spindler, Stasny, Thrasher, Tower, Walker, and Zwickel.

A student who expects to major in English should complete lower-division survey courses in English and American literature (English 3, 4, 5, and 6). These courses, however, are not absolute prerequisites to entrance into the program of major studies in English. If a student who is accepted as a major has not had the lower-division survey courses, he will be expected to compensate for this deficiency by taking certain upper-division courses that will be suggested by the departmental adviser.

Advisers of upper-division students who are not English majors may schedule them for English courses in the "100" series without regard to prerequisites. In order to qualify for registration in a course in the "200" series, a student is expected to have had prior work in upper-division courses.

Teacher Certification for English Majors

A student may take the A.B. degree in the College of Arts and Sciences with a major in English and at the same time qualify for teacher certification. Such a student will satisfy the requirements for the first teaching field in English while completing courses for his major. His second teaching field will be correlated with his minor subject in Arts and Sciences. He will complete 20 hours of prescribed courses in Education. The second teaching field for English teachers may be Speech, Library Science, Art, French, Spanish, German, Latin, or Social Studies. Other combinations are possible.

During the first two years, the courses chosen are largely governed by the basic two-year program required of all candidates for teacher certification. See the University bulletin *Teacher Training Programs* or the *Announcements* of the College of Education. These requirements satisfy most of the group or "distribution" requirements of Arts and Sciences.

By carefully planning his program, a student may complete all requirements for the A.B. degree and for teacher certification within four years. A mimeographed summary of all requirements which must be met in the combined program is available at the office of the Department of English.

Choice of Two Majors in English

The prescribed upper-division program for majors in English requires the student to complete courses in both English literature and American literature and allows him to determine the relative emphasis he will give to each. Three upper-division courses (Group "A") are required of all majors. Credit for this group is 9 hours. Twelve additional hours are chosen from groups "B" and "C" according to the student's desire to emphasize English literature or American literature. The plan is shown as follows:

GROUP A (9 hr. required of all English majors):

1. English 142. Shakespeare. 3 hr.
2. English 234. Chaucer. 3 hr.
3. English 230. History of the English Language. 3 hr.

Choice of twelve additional hours of upper-division work, as follows:
Emphasis on English Literature: 9 hr. from Group B, 3 hr. from Group C.
Emphasis on American Literature: 3 hr. from Group B, 9 hr. from Group C.

GROUP B:

1. English 138. English Literature, 1660-1744. 3 hr.
2. English 139. English Literature, 1744-1798. 3 hr.
3. English 140. Elizabethan Poetry and Prose. 3 hr.
4. English 141. Literature of the 17th Century. 3 hr.
5. English 249. The Romantic Movement. 3 hr.
6. English 257. Victorian Poetry. 3 hr.
7. English 258. Victorian Prose. 3 hr.

The departmental adviser may allow the substitution of certain cognate period courses in English literature for any of those listed in this group; namely, courses in the literature of the Early English period, the Middle Ages, the 16th, 17th, 18th, 19th, and 20th centuries.

GROUP C:

1. English 166. American Fiction. 3 hr.
2. English 222. American Biography. 3 hr.
3. English 239. Southern Writers. 3 hr.
4. English 250. American Romanticism. 3 hr.
5. English 270. American Poetry. 3 hr.

English majors are strongly advised to study a second foreign language. For the first choice of a foreign language, the Department recommends French or German.

History 133 and 134 were formerly required of all English majors. The requirement is now not absolute; but the English major will schedule these courses unless he is precluded from doing so by the demands of the other parts of his program of studies.

Honors Program

At the beginning of the second semester of his junior year, an English major who has achieved an overall grade-point average of 3.00 or better, and whose record in English studies is above 3.00, may apply for admission to the Honors Program of the Department. (See page 142).

Suggested Semester Programs

The following lower-division course program is suggested for pre-English majors. The "electives" refer to groups 1, 2, 4, and 5 of "Distribution Requirements" in Arts and Sciences, and the numbers refer to these groups. The footnotes indicate choices that should be made by the teacher-trainee in order to combine these requirements with those of the teacher-training curriculum.

FIRST YEAR*

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
English 3 or 5	3	English 4 or 6	3
Foreign language	3	Laboratory Sci.	4
Laboratory Sci.	4	Foreign language	3
History or Humanities	3-4	History or Humanities	3-4
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	17-19		17-19

SECOND YEAR*

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 3 or 5	3	English 4 or 6	3
Foreign language	3	Foreign language	3
Electives (Groups 2, 4, 5)	9-11	Electives (Groups 2, 4, 5)	9-11
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
	17-19		17-19

THIRD YEAR**

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 142	3	Upper-division English B or C	3
English (Groups B or C)	3	Minor Subject	3-6
Minor Subject	3	Electives	8-12
Electives	8-10		
	17-19		17-19

FOURTH YEAR**

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 234	3	English 230	3
English (Groups B or C)	3	English (Groups B or C)	3
Minor Subject	3	Minor Subject	3
Electives	9	Electives	9
	18		18

**Special Note for Students Preparing for Teacher Certification*:

For the science requirement, choose the general course in Biology or in Physical Science. To satisfy Arts and Sciences Group 4 choose Speech 3, 6, 11, or 29. For Group 2, take Social Sci. 1 and 2. Other courses to work into your program as early as possible are Music 10 and Art 30 or 130, although Art 130 must be postponed and taken for upper-division credit. If your second field is to be Social Studies, you may postpone satisfying Arts and Sciences Group 5, and take Geography as upper-division credit. In the last semester of your second year take Educ. 105. For guidance in all these matters, study the bulletin "Teacher Training Programs—Requirements for Certification."

**For those preparing for teacher certification, the hours allowed for "electives" will be devoted to satisfying the requirements for certification. The requirements that must be satisfied are as follows:

(a) Any courses in the two-year general program for teachers that may not have been taken during the student's lower-division years. Check especially for English 18; Hist. 1 and 2 or Humanities 1 and 2; Social Sci. 1, 2; Music 10; Art 30; Health Educ. 101.
(b) Certain specific requirements for the English first teaching field, if not already met: Speech 3, 6, 11, or 29; 5 to 6 hr. additional, chosen from Journ. 215 (2 hr.), Libr. Sci. 1 or 101 (3 hr.), Speech 162 (3 hr.).
(c) Requirements of a second teaching field, insofar as they do not coincide with the student's Arts and Sciences minor.
(d) Twenty hours of Education, including practice teaching.

Courses of Instruction

Lower Division

0. English Composition. I, II. 3 hr. Required of all students who fail to qualify for English 1 on the Freshman English placement test. Staff

1. Composition and Rhetoric. I, II. 3 hr. Required of all candidates for the bachelor's degree in all colleges. Advanced sections are provided for students who made exceptionally high grades on the Freshman English placement test. Staff

2. Composition and Rhetoric. I, II. 3 hr. Continuation of English 1. Required of all candidates for the bachelor's degree in all colleges. Advanced sections are provided for students who made exceptionally high grades on the Freshman English placement test. Staff

3. Survey: English Literature. I, II. 3 hr. English authors from Beowulf to Burns and readings from their works. Upperclassmen may substitute English 163 for this course. Staff

4. Survey: English Literature. I, II. 3 hr. English authors from Robert Burns to the present and readings from their works. Upperclassmen may substitute English 164 for this course. Staff

5. American Literature. I, II. 3 hr. American authors to 1870 with readings from their works. Staff

6. American Literature. I, II. 3 hr. American poetry and prose from 1870 to the present. Continuation of English 5. Staff

13. Expository Writing. I, II. 2 hr. PR: English 1 and 2. Extensive practice in the various types of expository writing, together with the study of techniques. Staff

18. Advanced English Composition (Written and Spoken). I, II. 3 hr. PR: English 1 and 2. Practice in the organization of thought and in the correct and effective use of the language in writing and speaking, with emphasis on the various types and techniques of exposition. Staff

25. Introduction to Poetry. I, II. 3 hr. A nontechnical approach to poems selected for their intrinsic interest and ease of comprehension. Designed to instruct and give pleasure. Staff

26. Introduction to Fiction. I, II. 3 hr. A companion course to English 25 and English 27 in the reading of works of fiction selected for their interest and significance to the general reader. Emphasis on appreciation and enjoyment. Mr. Futrell

Upper Division

100. Honors Course. I, II. 3 hr. Independent reading and study. For students admitted to the Honors Program in the second semester of their junior year. Staff

115. Creative Writing: Narration (Short Story). II. 3 hr. Purpose and pattern of the modern short story; study of examples in the current periodicals; special assignments and conferences with individual students on a minimum number of short stories. Mr. Johnston

123. Business English. I, II. 3 hr. PR: English 18. Technical writing; assembling and analysis of economic and commercial data; writing of reports; business correspondence. Primarily for students enrolled in the College of Commerce. Mrs. Law and Staff

126. Advanced Composition. I, II. 3 hr. Technical forms of writing; designed particularly for students in science and engineering. Mrs. Buswell and Staff

127. Introduction to Literature (Part I). I, II. 3 hr. PR: English 1, 2. A course in the reading of stories, novels, plays, and poems for understanding and enjoyment. Arranged according to types and themes rather than according to literary history, and designed for students from all fields. Satisfies any general requirement in literature. Mr. Futrell, Mr. Davis, and Mr. Stasny

128. Introduction to Literature (Part II). II. 3 hr. PR: English 1, 2. A continuation of English 127, with emphasis upon fiction, drama, and poetry to be read for understanding and pleasure. May be taken independently of English 127. Mr. Futrell, Mr. Davis, and Mr. Stasny

129. Words and Usage. II. 3 hr. A practical course in vocabulary building and in English grammar and usage. Attention is given to the derivation, history, and meaning of words, and to the principles of syntax and grammar. Mr. Dowdell

138. English Literature, 1660-1744. I. 3 hr. Study of the literature from the Restoration to the death of Pope, exclusive of the drama. Staff

139. English Literature, 1744-1798. II. 3 hr. A study of literature from the death of Pope to the publication of Wordsworth's *Lyrical Ballads*, exclusive of the drama. Staff

140. Elizabethan Poetry and Prose. I. 3 hr. A study of the Renaissance in England as manifested in the great variety of nondramatic literary works of the sixteenth century, with emphasis on the major writers of the reign of Elizabeth. Mr. Foster and Staff

141. Literature of the 17th Century. II. 3 hr. A consideration of the major poets and prose writers of the 17th century, with the exception of dramatic writings. Mr. Foster and Staff

142. Shakespeare. I, II. 3 hr. A study of twelve of Shakespeare's most important plays. Mr. Brawner and Mr. Pitts

160. Contemporary Literature. I. 2 hr. A study of modern British and American poets and prose writers—including novelists, short-story writers, dramatists, and essayists. Chronology is roughly from 1900 to 1925. Mr. Foster and Mr. Futrell

161. Contemporary Literature. II. 2 hr. A continuation of English 161 from approximately 1925 to the present time. Mr. Foster and Mr. Futrell

163. English Literature. I, II. 3 hr. Survey: English Literature from the beginning to 1800. May be substituted for English 3 but may not be elected by students who already have credit for English 3. Staff

164. English Literature. I, II. 3 hr. Continuation of English 163 from 1800 to the present. May be substituted for English 4 but may not be elected by students who already have credit for English 4. Staff

166. American Fiction. I, II. 3 hr. The reading of ten or more of the most important American novels from Hawthorne to the present day, each considered as a work of art reflecting a significant view of life. Lectures on the works of principal authors, with class discussion of particular books. Mr. Hicks

173. Poetry. I, II. 3 hr. The appreciation and enjoyment of poems through critical and analytical reading. Studies in the various types of poetry, and of the language, imagery, and techniques of poetic expression. Mr. Brawner and Mrs. Buswell

175. The Short Story. I. 2 hr. A study of the historical development of the short story and of the schools into which the work of short-story writers is divided. Mr. Bishop

180. Bible Literature: Old Testament. I. 3 hr. The various types of literature exemplified in the Old Testament, read for their intrinsic merit and for their historical and cultural significance. Continued in English 181. Mr. Hicks

181. Bible Literature: New Testament and Apocrypha. II. 3 hr. The contents of the New Testament, its literary quality, with consideration of its historical relations and of the relationships of the several writers represented. Because of the difficulty of treating the wealth of materials of the Old Testament during the one semester of English 180, the first part of this course will be devoted to continuation of the study of certain books of the Old Testament. Mr. Hicks

198. Honors Course. I, II. 3 hr. For the first semester of the senior year of students admitted to the Honors Program. Staff

199. Honors Course. I, II. 3 hr. For students in the Honors Program; final semester of senior year. Staff

Upper Division and Graduate

222. Modern American Biography. I. 3 hr. A selection of the most significant and interesting biographies and autobiographies of Americans of distinction in literature, the arts, and public life. Miss Page

223. Modern British Biography. II. 3 hr. Representative works by such eminent masters of biography as Lytton Strachey, Sir Osbert Sitwell, Lord David Cecil, Sean O'Casey, Hugh Kingsmill, and others. Miss Page

*224. Literary Criticism. II. 3 hr. Literary criticism from Aristotle to modern times. Staff

225. Recent Literary Criticism. II. 3 hr. A brief survey of the theories and essays of four major schools of modern criticism and an application of these theories to a novel, a play, and selected poems and short stories. Mr. Foster

228. Advanced Grammar. I, II. 3 hr. A course in descriptive grammar, the parts of speech, construction, and methods of diagramming. Mr. Bishop

230. History of the English Language. I. 3 hr. A study of the nature of the language; questions of origins, language families, development, and relationships of English as one of the Indo-European languages. Mr. Pitts

*231. Old English. I. 3 hr. A study of Anglo-Saxon grammar, with selected reading from the literature of the period. Staff

*232. Beowulf. II. 3 hr. PR: English 231. Continuation of the study of Old English; critical reading of *Beowulf*. Staff

234. Chaucer. I. 3 hr. A study of Chaucer's *Canterbury Tales* and *Troilus and Criseyde*. In addition to an understanding and appreciation of Chaucer's literary work, the student is expected to acquire an adequate knowledge of Chaucer's language. Mr. Brawner

235. Shakespeare. I. 3 hr. A course for undergraduates and graduates in the detailed study of three of Shakespeare's major plays. Staff

239. Southern Writers. II. 3 hr. Examination of twentieth-century Southern essayists, poets, short-story writers, and novelists in relation to the ideological background. Mr. Foster

242. Literature for Teachers. S. 3 hr. Study and appreciation of selected works of American authors, with special reference to the high-school curriculum. Given usually in the summer session. Mr. Hicks

243. Literature for Teachers. S. 3 hr. Study and appreciation of selected works of English authors. Recommended for teachers of high-school English. Given usually in the summer session. Mr. Hicks

*244. Literature of the Sixteenth Century. I. 3 hr. Renaissance in England as reflected in literature, with some consideration of the fine arts and other aspects of culture. Mr. Brawner and Mr. Pitts

*245. Literature of the Seventeenth Century. II. 3 hr. The struggle between Cavalier and Puritan as reflected in the literature of the age. Mr. Foster and Staff

*247. Literature of the Eighteenth Century. I. 3 hr. The culture-history of England, 1700-1750, as expressed in social, economic, political, and religious movements, and as reflected in literature. Staff

*Given only in alternate years.

*248. Literature of the Eighteenth Century. II. 3 hr. A continuation of English 247, covering the period from 1750-1800. Staff

249. The Romantic Movement. I. 3 hr. The works of Wordsworth, Coleridge, and Keats, together with an introduction to works of scholarship in the field of English Romanticism. Mr. Brawner

250. American Romanticism. II. 3 hr. The writings of Ralph Waldo Emerson, Henry David Thoreau, and Nathaniel Hawthorne. A study of the relations of these men to the history of their own time, and of their contributions to American thought and art. Mr. Brawner, and Mr. Davis

*252. Modern English Literature, 1881-1918. I. 3 hr. A consideration of the revolt against mechanism, the new romanticism, doctrines of action, and contemporary tendencies. Staff

*253. Pre-Shakespearean Drama. I. 3 hr. A study of the medieval drama from its beginning to the middle of the 16th century. Staff

*254. Elizabethan Drama. II. 3 hr. A study of the dramatists of the Elizabethan period, exclusive of Shakespeare. Mr. Brawner

*255. Restoration and Eighteenth Century Drama. I. 3 hr. A study of persistent forms and new developments in the drama of the period. Staff

256. Modern Drama. II. 3 hr. A study of world drama from Ibsen to the present day, with particular reference to -isms and ideas. Mr. Johnson and Staff

257. Victorian Poetry. I. 3 hr. A study of the major Victorian poets—Tennyson, Browning, Arnold, Rossetti, Morris, Swinburne, Fitzgerald, and a few of the later Victorian poets. Mr. Gainer and Mr. Pitts

258. Victorian Prose. II. 3 hr. A study of the nonfictional writings of the great Victorian prose critics: Carlyle, Ruskin, Arnold, Newman, Macaulay, Huxley, Morris. Mr. Gainer and Mr. Stasny

259. Dramatic Art of Shakespeare. II. 3 hr. A study of several of Shakespeare's histories, comedies, and tragedies, showing the chronological development of his art and matters of stage presentation in Shakespeare's age. Mr. Bishop

260. Studies in Shakespearean Comedy. I, II. 3 hr. PR: English 142, or consent. Textual and dramatic study of representative comedies. Staff

261. Technique of the Drama. I. 2 hr. A study of dramatic structure, with emphasis upon appreciation. Staff

262. Study of Selected Authors. (American). I, II. 3 hr. A study of the works of a principal American author, or of more than one, as announced when the course is scheduled. Staff

263. Study of Selected Authors. (English). I, II. 3 hr. Study of the works of one or more of the principal English authors, as announced in the schedule when the course is listed. Staff

*264. Spenser. I. 3 hr. A study of Spenser's minor poems and *The Faerie Queene;* forms and sources, purpose of the great epic, social, political, and religious allegory. Staff

265. Byron and Shelley. II. 3 hr. Reading and study of the works of two poets of the later Romantic Movement, together with works of criticism and scholarship related to the period. Mr. Gainer

267. Milton. I, II. 3 hr. A study of Milton's poems and of a few selected prose works. Mr. Gainer

*Given only in alternate years.

270. American Poetry. I. 3 hr. A study of the major American poets of the nineteenth and twentieth centuries—Bryant, Poe, Emerson, Longfellow, Whitman, Dickinson, Frost, Eliot. Mr. Foster

272. Folk Literature. II. 3 hr. A study of the folk ballad, its origin, history, and literary significance, based on Child's collection and on American ballad collections. Mr. Gainer

275. The English Novel to the Time of Scott. I. 3 hr. A study of the English novel from the 16th century to the time of Scott, showing the development of the novelistic art from early narrative beginnings. Mr. Bishop

276. The English Novel, 1832-1900. II. 3 hr. A continuation of English 275. The development of the English novel from the early 19th century to the beginning of the 20th century. Mr. Bishop

278. Tragedy. II. 3 hr. Masterpieces of tragedy from Greek times to modern, with consideration of the changing concepts of tragedy and of the ethical and ideological values reflected in the works of major tragic authors. Mr. Brawner

280. The Modern Novel. I, II. 3 hr. The twentieth century novel, with emphasis upon the works of selected British novelists, together with a study of changing techniques during recent times. Mr. Johnston and Staff

291. Introduction to Literary Research. I, II. 2 or 3 hr. Lectures and exercises in research problems to prepare the student for such work in graduate and professional schools. Mr. Draper

Graduate Division

300. Thesis. I, II. 3 hr. Staff

301. Thesis. I, II. 3 hr. Staff

†331. The Renaissance. I, II. 3 hr. PR: Graduate standing. Literary and cultural influences from the Continent on the English literature of the late fifteenth and early sixteenth centuries. Discussion and analysis of major English literary works of the period. Staff

†341. English Drama to 1642. I, II. 3 hr. PR: Graduate standing. A consideration of the varied aspects of English drama from its medieval beginnings to the latter part of the sixteenth century. Discussion and analysis of selected dramas. Staff

†371. The Victorian Era. I, II. 3 hr. PR: Graduate standing. Writers of the first half of the Victorian period considered in relation to the cultural matrix from which they rise. Particular attention is given to the varying intellectual currents of the era. Staff

392. Seminar. I, II. 2 or 3 hr. PR: Specific authors to be approved by the instructor. A graduate study of particular periods or authors. Staff

†393. American Literature, 1870-. I, II. 3 hr. PR: Graduate standing. Literary and intellectual America from 1870 to 1914 in terms of its leading literary men and its changing cultural patterns. Discussion and analysis of selected prose and poetic works. Staff

†Normally given once in every two-year period.

FOREIGN LANGUAGES

Professors Lemke, Manning, McBride, Plaskacz, Singer, and Stilwell; Associate Professors del Valle, Frere, and Herrera; Assistant Professors Boggess, Taylor, and Wade; Instructors Beauchemin, Cantillano, Ferrante, Franck, Huffman, and Chmelev.

This department offers work in foreign language, literature, and culture. Areas included are French, Spanish, Italian, German, Russian, Latin, Greek, Linguistics, Language Teaching Methods, and Bibliography. A student may be a candidate for an A.B. degree with a major or minor in French, Spanish, German, or Latin, or with a minor in Russian or Greek. Students whose grades have constantly fallen below "B" in language work in the lower division should not select a foreign language as a major or minor. At least 36 hours of work in a given language constitutes a major and 24 hours of work a minor. In most cases the department recommends that students who major in a foreign language should minor in a second. This is not a requirement, however, and other fields may be offered with the approval of the department chairman. Students who wish to earn professional certificates as elementary or secondary foreign language teachers are advised to consult the College of Education *Announcements*. Students who have completed two or more years of study of a foreign language in high school can receive no credit towards a degree in the College of Arts and Sciences for either semester of the elementary work in that language.

Major in French

Requirements: French 1 and 2 or equiv., 3 and 4, 103 and 104, 109, 115, 116, 118, 217, and 231.

Suggested Program:

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Laboratory Sci.	4	Laboratory Sci.	4
French 3*	3	French 4*	3
Humanities 1	4	Humanities 2	4
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Electives	0-3	Electives	0-3
	15-18		15-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
French 103	3	French 104	3
Span. 1 or Ital. 1	3	Span. 2 or Ital. 2	3
Pol. Sci. 1 *or* Soc. Sci. 1	3-4	Pol. Sci. 2 *or* Soc. Sci. 2	3-4
Electives Group 5	3	Electives Group 4	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives	0-3	Electives	0-3
	17-18		17-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
French 109	3	French 231	3
French 115	3	French 116	3
Minor subject and electives	12	Minor subject and electives	12
	17-18		17-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
French 118	3	French 217	3
Minor subject and electives	15	Minor subject and electives	15
	17-18		17-18

*If a student has not had French in high school he will take French 1 and 2 in his first year and will take French 3 and 4 concurrently with French 103 and 104 in his second year.

Major in Spanish

Requirements: Spanish 1 and 2 or equiv., 3 and 4, 103 and 104, 109, 110, 211, 212, 221, and 222.

Suggested Program:

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Laboratory Sci.	4	Laboratory Sci.	4
Spanish 3*	3	Spanish 4*	3
Humanities 1	4	Humanities 2	4
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Electives	0-3	Electives	0-3
	15-18		15-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Spanish 103	3	Spanish 104	3
Fr. 1 or Ital. 1	3	Fr. 2 or Ital. 2	3
Pol. Sci. 1 *or* Soc. Sci. 1	3-4	Pol. Sci. 2 *or* Soc. Sci. 2	3-4
Electives Group 5	3	Electives Group 4	3
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives	0-3	Electives	0-3
	17-18		17-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Spanish 109	3	Spanish 110	3
Spanish 211	3	Spanish 212	3
Minor subject and electives	12	Minor subject and electives	12
	17-18		17-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Spanish 221	3	Spanish 222	3
Minor subject and electives	15	Minor subject and electives	15
	17-18		17-18

*If a student has not had Spanish in high school he will take Spanish 1 and 2 in his first year and will take Spanish 3 and 4 concurrently with Spanish 103 and 104 in his second year.

Major in German

Requirements: German 1 and 2 or equiv., 3 and 4, 103, 104, 109, 110, and at least 12 hr. of additional upper-division courses in German or Linguistics. (See Linguistics 211, 212, 251, 252, 271, 272, 281, and 282.)

Suggested Program:

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
German 1	3	German 2	3
English 1	3	English 2	3
Humanities 1	4	Humanities 2	4
Laboratory Sci.	4	Laboratory Sci.	4
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	15-17		15-17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
German 3	3	German 4	3
German 103	3	German 104	3
2nd For. Lang.	3	2nd For. Lang.	3
Pol Sci. 1 *or* Soc. Sci. 1	3-4	Pol. Sci. 2 *or* Soc. Sci. 2	3-4
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives	0-3	Electives	0-3
	15-18		15-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
German 109	3	German 110	3
German elective	3	German elective	3
2nd For. Lang.	6	2nd For. Lang.	6
Electives	3-6	Electives	3-6
	15-18		15-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
German	6	German	3
Electives	9-12	Electives	12-15
	15-18		15-18

Major in Latin

Requirements: Latin 1 and 2 or equiv., 3 and 4, 101, 102, 109, 110, 121, 122, and at least 6 additional hours of upper-division courses in Latin.

Suggested Program:

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Latin 3	3	Latin 4	3
English 1	3	English 2	3
Humanities 1	4	Humanities 2	4
Laboratory Sci.	4	Laboratory Sci.	4
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	15-17		15-17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Latin 101	3	Latin 102	3
Latin 109	3	Latin 110	3
Soc. Sci. 1	4	Soc. Sci. 2	4
Minor subject	3-6	Minor subject	3-6
Phys. Ed.	1	Phys. Ed.	1
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
	15-18		15-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Latin 121	3	Latin 122	3
Latin elective	3	Latin elective	3
Minor subject	6	Minor subject	6
Electives	3-6	Electives	3-6
	15-18		15-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Latin	6	Latin	3
Electives	9-12	Electives	12-15
	15-18		15-18

Courses of Instruction

FRENCH

Lower Division

1. Elementary French. I, II. 3 hr. Staff

2. Elementary French. I, II. 3 hr. Continuation of French 1. Staff

3. Intermediate French. I, II. 3 hr. Reading of modern French prose. Staff

4. Intermediate French. II. 3 hr. Continuation of French 3. Staff

Upper Division

103. Elementary Conversation. I. 3 hr. PR: French 1 and 2, or equiv. Staff

104. Elementary Conversation. II. 3 hr. Continuation of French 103. Staff

109. Grammar and Conversation. I. 3 hr. PR: 12 hr. of French, or equiv. Miss Wade

110. Advanced Conversation. II. 3 hr. PR: French 109, or equiv. Staff

115. The Classical School. I. 3 hr. PR: 12 hr. of French, or equiv. Mr. Manning

116. Literature of the Eighteenth Century. II. 3 hr. PR: 12 hr. of French, or equiv. Mr. Singer

118. Literature of the Nineteenth Century. I. 3 hr. PR: 12 hr. of French, or equiv. Mr. McBride

151. French for Public Schools. I. 3 hr. PR: 12 hr. of upper-division French, including French 103, 104, and 109. An intensive study of conversational French with emphasis on teaching methods in the elementary school. Staff

152. FRENCH FOR PUBLIC SCHOOLS. II. 3 hr. Continuation of French 151. Staff

Upper Division and Graduate

217. FRENCH CIVILIZATION. II. 3 hr. PR: 12 hr. of French. Miss Wade

221. THE ROMANTIC MOVEMENT. I. 3 hr. PR: A.B. in French, or consent. Mr. Singer

222. FRENCH REALISM. II. 3 hr. PR: A.B. in French, or consent. Mr. Singer

226. LITERARY CRITICISM. II. 3 hr. PR: A.B. in French, or consent. Mr. Singer

227. GRADUATE READING IN FRENCH. No credit. A special course to prepare Ph.D. candidates for the reading examination in French. Staff

229. LITERATURE OF THE 16TH CENTURY. I. 3 hr. PR: A.B. in French, or consent. Mr. McBride

231. PHONETICS AND PRONUNCIATION. II. 3 hr. PR: 18 hr. of French, or equiv. Mr. Manning

237. MOLIERE. II. 3 hr. PR: French 115. Mr. Beauchemin

241. FRENCH STRUCTURAL LINGUISTICS. 4 hr. PR: 12 hr. of French. A special course for the NDEA Language Institute. Staff

242. METHODS IN FRENCH SECONDARY TEACHING. 4 hr. PR: 12 hr. of French. A special course for the NDEA Language Institute. Staff

244. EXPLICATION DE TEXTES. II. 3 hr. PR: 18 hr. of French, or equiv. Mr. Manning

271. THE MODERN NOVEL TO 1930. I. 3 hr. PR: A.B. in French, or consent. Mr. Frere

272. THE NOVEL AFTER 1930. II. 3 hr. PR: A.B. in French, or consent. Mr. Frere

292. PRO-SEMINAR IN FRENCH LITERATURE. 1-6 hr. Special topics. Staff

Graduate Division

301. MASTER'S THESIS. 3-6 hr. Staff

392. SEMINAR IN FRENCH LITERATURE. 1-6 hr. Special topics. Staff

SPANISH

Lower Division

1. ELEMENTARY SPANISH. I, II. 3 hr. Staff

2. ELEMENTARY SPANISH. I, II. 3 hr. Continuation of Spanish 1. Staff

3. INTERMEDIATE SPANISH. I. 3 hr. Reading of modern Spanish prose. Staff

4. INTERMEDIATE SPANISH. II. 3 hr. Continuation of Spanish 3. Staff

Upper Division

103. ELEMENTARY CONVERSATION. I. 3 hr. PR: Spanish 1 and 2, or equiv. Staff

104. ELEMENTARY CONVERSATION. II. 3 hr. Continuation of Spanish 103. Staff

109. GRAMMAR AND CONVERSATION. I. 3 hr. PR: 12 hr. of Spanish, or equiv. Mr. Herrera

110. ADVANCED CONVERSATION. II. 3 hr. PR: Spanish 109, or equiv. Mr. Herrera

151. SPANISH FOR PUBLIC SCHOOLS. I. 3 hr. PR: 12 hr. of upper-division Spanish, including Spanish 103, 104, and 109. An intensive study of conversational Spanish with emphasis on teaching methods in the elementary school. Mr. Herrera

152. Spanish for Public Schools. II. 3 hr. Continuation of Spanish 151. Mr. Herrera

Upper Division and Graduate

211. Nineteenth Century Literature to 1870. I. 3 hr. PR: Spanish 3 and 4, or equiv. Mr. Singer

212. Spanish Literature Since 1870. II. 3 hr. PR: Spanish 3 and 4, or equiv. Mr. Singer

215. Lyric Poetry. I. 3 hr. PR: 12 hr. of Spanish, or equiv. Mr. Herrera

216. Spanish Civilization and Culture. I. 3 hr. PR: 12 hr. of Spanish, or equiv. Mr. Herrera

217. Spanish-American Literature and Culture. I. 3 hr. PR: Spanish 3 and 4, or equiv. Mr. del Valle

218. Spanish-American Literature and Culture. II. 3 hr. PR: Spanish 3 and 4, or equiv. Continuation of Spanish 217. Mr. del Valle

221. Literature of the Golden Age to 1635. I. 3 hr. PR: 18 hr. of Spanish, or equiv. Mr. Herrera

222. The Golden Age After Lope De Vega. II. 3 hr. PR: 18 hr. of Spanish, or equiv. Mr. Herrera

223. Estudios De Estilo. I. 3 hr. PR: 18 hr. of Spanish, or equiv. Staff

224. Explicacion De Textos. II. 3 hr. PR: 18 hr. of Spanish, or equiv. Staff

225. The Picaresque Novel. I. 3 hr. PR: 12 hr. of Spanish, or equiv. Mr. Herrera

227. Graduate Reading in Spanish. No credit. A special course to prepare Ph.D. candidates for the reading examination in Spanish. Staff

241. Spanish Structural Linguistics. 4 hr. PR: 12 hr. of Spanish. A special course for the NDEA Language Institute. Staff

242. Methods in Spanish Secondary Teaching. 4 hr. PR: 12 hr. of Spanish. A special course for the NDEA Language Institute. Staff

291. Cervantes. II. 3 hr. PR: A.B. in Spanish, or consent. Mr. Singer

292. Pro-Seminar in Spanish Literature. 1-6 hr. Special topics. Staff

295. Sixteenth Century Literature. I. 3 hr. Staff

297. Pro-Seminar in Spanish-American Studies. 1-6 hr. Special topics. Staff

Graduate Division

301. Master's Thesis. 3-6 hr. Staff

392. Seminar in Spanish Literature. 1-6 hr. Special topics. Staff

397. Seminar in Spanish-American Studies. 1-6 hr. Special topics. Staff

ITALIAN

Lower Division

1. Elementary Italian. I. 3 hr. Staff

2. Elementary Italian. II. 3 hr. Continuation of Italian 1. Staff

3. Intermediate Italian. I. 3 hr. Reading of modern Italian prose. Staff

4. Intermediate Italian. II. 3 hr. Continuation of Italian 3. Staff

GERMAN

Lower Division

1. Elementary German. I, II. 3 hr. Staff

2. Elementary German. I, II. 3 hr. Staff

3. Intermediate German. I. 3 hr. Reading of modern German prose. Staff

4. Intermediate German. II. 3 hr. Continuation of German 3. Staff

Upper Division

103. Spoken German. I. 3 hr. PR: German 1 and 2, or equiv. Staff

104. Spoken German. II. 3 hr. Continuation of German 103. Staff

105. The German Novelle. I. 3 hr. PR: German 3 and 4, or consent. Representative stories of Keller, Meyer, Storm, and Stifter. Mr. Lemke

106. The German Novelle. II. 3 hr. PR: German 3 and 4, or consent. From Naturalism to present day. Continuation of German 105. Mr. Lemke

107. Nineteenth Century Drama. I. 3 hr. PR: German 3 and 4, or consent. Critical study of selected dramas by Kleist, Grillparzer, Hebbel, and Ludwig. Mr. Lemke

108. Nineteenth Century Drama. II. 3 hr. PR: German 3 and 4, or consent. Continuation of German 107. Mr. Lemke

109. Advanced Grammar and Composition. I. 3 hr. PR: German 103 and 104, or consent. Intensive review of German grammar with extensive practice in German composition and translation into German. Mr. Stilwell

110. Advanced Composition and Conversation. II. 3 hr. PR: German 109, or consent. Additional practice in composition, with all explanations and discussions conducted in German. Mr. Stilwell

121. Scientific German. I. 3 hr. PR: German 1 and 2. Primarily for students in science courses. Staff

122. Scientific German. II. 3 hr. Continuation of German 121. Staff

136. Introduction to Goethe. II. 3 hr. PR: German 3 and 4, or consent. Mr. Lemke

161. Lyric Poetry. I. 3 hr. PR: German 3 and 4, or consent. Mr. Lemke

163. Modern German Prose in English Translation. I. 3 hr. Reading and discussion of outstanding German short stories and a few novels. (No credit allowed for departmental major nor for regular language requirements). Staff

Upper Division and Graduate

201. Independent Reading. I. 3 hr. Supervised reading for students who wish to do intensive work in any field of interest. Mr. Lemke

202. Independent Reading. II. 3 hr. Continuation of German 201. Mr. Lemke

227. Graduate Reading in German. No credit. A special course to prepare Ph.D. candidates for the reading examination in German. Staff

242. Faust. II. 3 hr. Critical study of Goethe's *Faust*. Mr. Lemke

243. Medieval German Literature. I. 3 hr. PR: German 4, or consent. Mr. Stilwell

244. German Literature of the Restoration and Renaissance. II. 3 hr. PR: German 4 or consent. Mr. Stilwell

245. Classicism and Romanticism. I. 3 hr. PR: German 4, or consent. A critical study of German literature from 1750 to 1830. Mr. Lemke

246. The Liberal Age. II. 3 hr. PR: German 4, or consent. A critical study of German literature from 1830 to 1880, with an emphasis upon Poetic Realism. Mr. Lemke

247. The Age of Crisis. I. 3 hr. PR: German 4, or consent. A critical study of German literature from 1880 to the present. Mr. Lemke

265. German Civilization. I. 3 hr. PR: 12 hr. of German, or consent. A general comprehensive survey of the most important aspects of German culture, including a brief historical background, the development of the German language, geography, science, music, art, architecture, literature, and philosophy. Mr. Lemke and Mr. Stilwell

275. The Modern Novel. I. 3 hr. PR: 18 hr. of German. Supervised reading of nineteenth century novels. Mr. Lemke

276. The Modern Novel. II. 3 hr. Continuation of German 275, with emphasis on recent fiction. Mr. Lemke

292. Pro-Seminar in German Literature. 1-6 hr. Special topics. Staff

Graduate Division

301. Master's Thesis. 3-6 hr. Staff

392. Seminar in German Literature. 1-6 hr. Special topics. Staff

RUSSIAN

Lower Division

1. Elementary Russian. I. 3 hr. Staff

2. Elementary Russian. II. 3 hr. Staff

3. Intermediate Russian. I. 3 hr. Reading of modern Russian prose. Staff

4. Intermediate Russian. II. 3 hr. Continuation of Russian 3. Staff

Upper Division

103. Elementary Conversation. II. 3 hr. PR: Russian 1 and 2, or equiv. Mr. Chmelev

104. Elementary Conversation. I. 3 hr. Continuation of Russian 103. Mr. Chmelev

144. Survey of Russian Literature. I. 3 hr. PR: Russian 3 and 4, or consent. Mr. Plaskacz

145. Survey of Russian Literature. II. 3 hr. Continuation of Russian 144. Mr. Plaskacz

Upper Division and Graduate

211. The Russian Novel. I. 3 hr. PR: Russian 3 and 4, or consent. Mr. Plaskacz

212. The Russian Novel. II. 3 hr. Continuation of Russian 211. Mr. Plaskacz

LATIN

Lower Division

1. Elementary Latin. I. 3 hr. Staff

2. Elementary Latin. II. 3 hr. Continuation of Latin 1. Staff

3. Intermediate Latin. I. 3 hr. PR: Latin 1 and 2, or two years of high-school Latin. Selections from Caesar, Aulus Gellius, and Nepos, and from other authors of comparable difficulty, designed to prepare students to read orations of Cicero. Mr. Boggess

4. Cicero's Orations. II. 3 hr. PR: Latin 3, or two years of high-school Latin. Mr. Boggess

Upper Division

101. Classical Myths in the Modern World. I. 3 hr. This course, given entirely in English and assuming no knowledge of Greek or Latin, introduces the student to classical myths of gods and legends of heroes and their influence upon the modern world of thought and science. Mr. Boggess

102. Classical Culture and the Modern World. II. 3 hr. This course, given entirely in English, introduces the student to classical life and thought through a study of Greek and Roman daily life and customs, art, law, literature, science, and the influence of these upon present-day life and thought. Mr. Boggess

109. Selections from Roman Prose. I. 3 hr. PR: Latin 3 and 4, or equiv. Mr. Boggess

110. Selections From Roman Poetry. II. 3 hr. PR: Latin 4 and 109, or equiv Mr. Boggess

111. Latin for Law Students. II. 3 hr. PR: Latin 3, or two years of high-school Latin. Selections from legal Latin and the Institutes of Justinian. Mr. Boggess

112. Roman Letterwriting. I. 3 hr. PR: Latin 4 and 109, or four years of high-school Latin. Mr. Boggess

121. Survey of Latin Literature. I. 3 hr. PR: Latin 109 and 110, or consent. Mr. Boggess

122. Survey of Latin Literature. II. 3 hr. PR: Latin 109 and 110, or consent. Mr. Boggess

Upper Division and Graduate

201. The Story and Novel. I. 3 hr. PR: Latin 109, 110, or equiv. The origin of the story and novel is traced from Homer to the Medieval Greek and Latin romance writers. Selections from Petronius, the *Cena Trimalchionis*, and from Apuleius, *Cupid and Psyche*. Mr. Boggess

202. Drama. II. 3 hr. PR: Latin 109, 110, or equiv. A brief history of the origin and development of Greek and Roman drama. The *Menaechmi* of Plautus, the *Andria* of Terrence, and the *Medea* of Seneca are read in Latin. Mr. Boggess

203. Oratory. II. 3 hr. PR: Latin 109, 110, or equiv. A survey of Greek and Roman oratory is given and part of the first book of Cicero's *De Oratore*; selections from Quintilian's *Institutes* and from Tacitus' *Dialogue de Oratoribus* are read in Latin. Mr. Boggess

227. Graduate Reading in Latin. No credit. A special course to prepare Ph.D. candidates for the reading examination in Latin. Mr. Boggess

231. Satire. II. 3 hr. PR: Latin 109, 110, or equiv. Greek satirical writings and the origin of the Roman satire. Selections in Latin from the *Satires* and *Epistles* of Horace, and from the *Satires* of Persius and Juvenal. Mr. Boggess

234. History. I. 3 hr. PR: Latin 109, 110, or equiv. The origin and development of Roman historiography and its Greek antecedents. Selections in Latin from Livy's *History*, from Tacitus' *Agricola*, and from Suetonius' *Julius Caesar*. Mr. Boggess

235. Epic. I. 3 hr. PR: Latin 109, 110, or equiv. The origin and development of the Greek and Roman epic. Selections from Vergil's *Aeneid*, from Lucretius' *De Rerum Natura*, and from the earlier and later epic poets in Latin. Mr. Boggess

236. Philosophy. II. 3 hr. PR: Latin 109, 110, or equiv. The origin and development of Greek philosophy and its influence upon Roman philosophy. Selections from Cicero's *Tusculan Disputations* on the immortality of the soul and from Seneca's *Epistles* in Latin. Mr. Boggess

292. Pro-Seminar in Latin Literature. 1-6 hr. Special topics. Mr. Boggess

Graduate Division

301. Master's Thesis. 3-6 hr. Mr. Boggess

392. Seminar in Latin Literature. 1-6 hr. Special topics. Mr. Boggess

GREEK

Lower Division

1. Elementary Greek. I. 3 hr. Staff

2. Elementary Greek. II. 3 hr. Continuation of Greek 1. Staff

3. Intermediate Greek. I. 3 hr. Staff

4. Intermediate Greek. II. 3 hr. Continuation of Greek 3. Staff

Upper Division

109. Selections from Medieval and Modern Greek Literature. I. 3 hr. Mr. Boggess

110. Selections from the Attic Orators. II. 3 hr. Mr. Boggess

121. Survey of Greek Literature. I. 3 hr. PR: Greek 109, 110, or consent. Mr. Boggess

122. Survey of Greek Literature. II. 3 hr. Continuation of Greek 121. Mr. Boggess

Upper Division and Graduate

292. Pro-Seminar in Greek Literature. 1-6 hr. Special topics. Mr. Boggess

Graduate Division

392. Seminar in Greek Literature. 1-6 hr. Special topics. Mr. Boggess

LINGUISTICS

Upper Division

111. Introduction to Structural Linguistics. I. 3 hr. Recommended for foreign language majors. Staff

Upper Division and Graduate

211. Middle High German. I. 3 hr. PR: 12 hr. of German from upper division. Study of the linguistic developments of Middle High German from the eleventh to the fifteenth centuries with illustrative readings from the *Nibelungelied.* Mr. Stilwell

212. Middle High German. II. 3 hr. Continuation of Linguistics 211 with illustrative readings from the Middle High German lyric poets and the courtly epics. Mr. Stilwell

225. Comparative Grammar of Greek and Latin. I. 3 hr. PR: Consent. Mr. Boggess

226. Italic Dialects. II. 3 hr. PR: Consent. Mr. Boggess

227. Vulgar Latin. II. 3 hr. PR: Latin 12, 22, or equiv. Selections from Latin inscriptions and later Latin literature are studied to illustrate the development of the Latin language from its earliest times to its passing into the Romance languages. Mr. Boggess

231. *See* French 231.

241. *See* French 241 *and* Spanish 241.

251. History of the German Language. I. 3 hr. PR: 18 hr. of German, or consent. A study of the historical development of standard German with emphasis on its relationships to the other German languages and dialects. Mr. Stilwell

252. Comparative Germanic Linguistics. II. 3 hr. PR: Linguistics 251, or consent. A comparative study of Gothic, Old English, Old Norse, Old High German and Old Saxon. Mr. Stilwell

255. History of the Spanish Language. I. 3 hr. A study of the development of Spanish and the transformation of the Castilian dialect into the national language of Spain. The course, given in Spanish, will include the cultural factors as well as a study of historical phonology, morphology, and syntax. Mr. Plaskacz

271. Old English. I. 3 hr. PR: Consent. Elementary study of Old West Saxon with illustrative materials from prose and poetry. Mr. Stilwell

272. Old English. II. 3 hr. Continuation of Linguistics 271. Comparison of the Old English dialects, with extensive illustrative readings, especially in *Beowulf*. Mr. Stilwell

281. Old Norse. I. 3 hr. PR: Consent. Elementary study of Old West Norse prose. Mr. Stilwell

282. Old Norse. II. 3 hr. Continuation of Linguistics 281. Readings in various Old Icelandic sagas; introduction to Old Norse poetry. Mr. Stilwell

285. Elementary Sanskrit. I. 3 hr. PR: Consent. Mr. Boggess

286. Elementary Sanskrit. II. 3 hr. Continuation of Linguistics 285. Mr. Boggess

290. Old French. II. 3 hr. PR: Consent. Mr. Manning

292. Pro-Seminar in Linguistics. 1-6 hr. Special topics. Staff

296. Old Spanish. II. 3 hr. PR: Consent. Mr. Manning

Graduate Division

392. Seminar in Linguistics. 1-6 hr. Special topics. Staff

LANGUAGE TEACHING METHODS

Upper Division

151. *See* French 151 *and* Spanish 151.

152. *See* French 152 *and* Spanish 152.

Upper Division and Graduate

221. Methods and Materials in the Teaching of Foreign Languages. I. 2 hr. Required of all prospective elementary and secondary school teachers majoring in a foreign language. Staff

222. Language Laboratory Techniques. II. 2 hr. Required of all candidates for a graduate degree in a foreign language. Staff

242. *See* French 242 *and* Spanish 242.

BIBLIOGRAPHY

Upper Division and Graduate

265. Methods of Research. I. 3 hr. For students of French, German, or Spanish. Mr. Singer

GEOLOGY AND GEOGRAPHY

Professors Wells, Fridley, Heald, Ludlum, and Price; Associate Professors Burford and Donaldson; Assistant Professors Corbett, Dodson (part-time), and Little; Instructor Gillespie (part-time).

Laboratory Fees

A nonrefundable fee is required of all students who take the following laboratory courses in Geology:

Course	*Per Semester*	*Course*	*Per Semester*
Geol. 2	$2.00	Geol. 4	$2.00

Bachelor of Science in Geology

Each candidate for the Bachelor of Science degree is required to present credit for Geol. 266 or its equivalent. Students planning to seek employment in the petroleum industry should take Math. 116 and 117. A total of 132 hours is required, of which a minimum of 124 hours must be established in subjects exclusive of credits earned in required Physical Education, required Military or Air Science, English 0, and Math. 2.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Geol. 1	3	Geol. 3	3
Geol. 2	1	Geol. 4	1
Math. 3	3	Math. 4	3
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed. 1	1	Phys. Ed. 2	1
	16		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1	4	C.E. 1	2
Foreign language	3	Chem. 2	4
Geol. 184	4	Foreign language	3
Math. 15	4	Geol. 185	4
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
		Electives	3
	17		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Geol. 127	2	English 126	3
Geol. 151	4	Geol. 231	4
Geol. 270	3	Geol. 261	3
Physics 1 (111)	4-5	Physics 2 (112)	4-5
Electives	5-4	Electives	3-2
	18		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Geol. 221	3	Electives	17
Electives	14		
	17		17

Bachelor of Arts in Geology

A minimum of 124 hours must be established in subjects exclusive of credit earned in required Physical Education, required Military Science or Air Science, English 0, and Math. 2.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Geol. 1	3	Geol. 3	3
Geol. 2	1	Geol. 4	1
Math. 2 or 3	3	Math. 4	3
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed. 1	1	Phys. Ed. 2	1
	16		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1	4	Chem. 2	4
Foreign language	3	Foreign language	3
Geol. 184	4	Geog. 109	3
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives	3-4	Electives	3-4
	16-17		15-16

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Art 115	3	Chem. elective	3
Geol. 151	4	Geol. 261	3
Physics 1	4	Physics 2	4
Electives	6	Electives	7-8
	17		17-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Geol. 127	2	English 126	3
Geol. 221	3	Geol. 231	4
Electives	12	Electives	10
	17		17

Courses of Instruction

Geology

Lower Division

1. Physical Geology. I, II. 3 hr. Description of composition and structure of earth; physical processes which change earth's surface. Accompanied by Geol. 2 to meet requirements for 4 hr. credit in a laboratory science in physical geology. Staff

2. Physical Geology Laboratory. I, II. 1 hr. Accompanies Geol. 1. Staff

3. Historical Geology. I, II. 3 hr. PR: Geol. 1. Evolution of earth and its inhabitants. Accompanied by Geol. 4 to meet requirements for 4 hr. credit in a laboratory science in historical geology. Mr. Wells

4. Historical Geology Laboratory. I, II. 1 hr. Accompanies Geol. 3. Mr. Wells

5. Introduction to Geology. I, II. 3 hr. Designed especially for non-science majors. Composition and structure of earth and geologic processes which shape its surface. Accompanied by Geol. 2 to meet requirements for 4 hr. credit in a laboratory science in physical geology. Mr. Donaldson

Upper Division

125. Geologic Drafting. I. 1 hr. Staff

127. Map Interpretation. I. 2 hr. PR: Geol. 2, 4. Relation of earth structure and history to land forms as shown on topographic maps. Mr. Burford

151. Structural Geology. I. 3-4 hr. PR: Geol. 1. Shape and position of rock masses in the earth's crust; mechanical principles underlying various types of rock deformation; indication of economic importance of deformed rock structures with respect to recovery of mineral products. Mr. Burford

184. Mineralogy. I. 4 hr. PR: 1 year of geology. Elements of crystallography and systematic study of minerals except silicates. Identification of minerals by their physical properties supplemented by blow-pipe analysis. Mr. Heald

185. Mineralogy and Petrography. II. 4 hr. PR: Geol. 184. Description, mode of occurrence, and classification of silicate minerals and rocks. Mr. Heald

Upper Division and Graduate

201. Physical Geology for Teachers. S. 3 hr. PR: High school teaching certificate, and consent. Composition and structure of earth and the geologic processes which shape its surface. Staff

202. Physical Geology Laboratory for Teachers. S. 1 hr. Accompanies Geol. 201. Laboratory and field study of earth materials and features, and the topographic and geologic maps used to represent them. Staff

221. Geomorphology. I. 3 hr. Study of surface features of eastern United States. Staff

222. Geomorphology. II. 3 hr. Study of surface features of western United States. Staff

228. Photogeology. II. 3 hr. PR: Geol. 127, 151. Instruction in basic and advanced techniques of air photo interpretation. Mr. Burford

231. Invertebrate Paleontology. II. 4 hr. PR: Geol. 3, 4. Invertebrate fossils; biologic classification, evolutionary development, and use in correlation of strata. Mr. Wells

235. Introductory Paleobotany. I. 4 hr. PR: Geol. 3 and/or Bot. 2. Resume of development of principal plant groups through the ages, present distribution, mode of occurrence and index species, methods of collection. Mr. Gillespie

261. Stratigraphy and Sedimentation. II. 3 hr. Study of sediments and sedimentary rocks. Field techniques stressed as data gathered and interpreted from rocks of Pennsylvanian age in Morgantown vicinity. Two-day field trip required. Mr. Donaldson

263. Ground-water Hydrology. I. 3 hr. PR: Geol. 1 or consent. Study of the principles of ground-water hydrology; occurrence, development, uses, and conservation of ground-water. Mr. Dodson

266. Appalachian Geology Field Camp. S. 6 hr. PR: Geol. 231, 261. Practical experience in detailed geological field procedures and mapping. Living expenses in addition to tuition must be paid at time of registration. Mr. Wells

269. X-Ray Diffraction. I, II. 2 hr. The theory of X-ray diffraction and application to the analysis of crystalline materials using the powder camera and X-ray diffractometer. Open to advanced students in geology, chemistry, engineering and related fields with consent of instructor. Mr. Heald

270. Mineral Resources. I, S. 3 hr. PR: Geol. 1, 2. General survey of character, origin, and distribution of natural mineral resources, including mineral fuels, nonmetallic minerals, ore deposits, and ground-water. Mr. Corbett

272. Petroleum Geology. II. 3-4 hr. PR: Geol. 151. Origin, geologic distribution, methods of exploration and exploitation, uses and future reserves of petroleum and natural gas in the world. Mr. Burford

285. Optical Mineralogy. I. 4 hr. PR: Geol. 185 and one year of Physics. Principles and practice in use of the petrographic microscope in identification of minerals. Emphasis on determination by immersion method. Mr. Heald

290. Geologic Problems. I, II. 2-3 hr. Special problems for seniors and graduates. Staff

291. Seminar. I. 1 hr. Staff

294. Introductory Geochemistry. I. 3 hr. PR: Geol. 185 or consent. Evolution of earth as suggested by chemical and physical data, followed by topics of current interest, including geologic thermometry, oxidation potential and pH, and geochemical prospecting. Mr. Corbett

295. Geochemistry. II. 3 hr. PR: Geol. 185 or consent. Mineral systems at low temperatures and low pressures considered in terms of partial pressure, oxidation potential, and pH. Laboratory study includes directed investigation of a topic of interest to the student. Mr. Corbett

Graduate Division

329. Problems in Geomorphology. I, II. 1-4 hr. Staff

332. Micropaleontology. I. 4 hr. PR: Geol. 231. Identification of Foraminifera and Ostracoda; emphasis on classification, nomenclature, and use of paleontological literature. Mr. Wells

334. Problems in Paleontology. I, II. 1-4 hr. Mr. Wells

336. Advanced Paleobotany. II. 4 hr. Continuation of Geol. 235. Mr. Gillespie

339. Problems in Paleobotany. I, II. 1-4 hr. Mr. Gillespie

340. Advanced Stratigraphy. II. 4 hr. PR: Geol. 231. Study of principles of rock and time correlation, emphasis on their application to the stratigraphy of West Virginia. Mr. Donaldson

346. Advanced Sedimentation. I. 4 hr. PR: Geol. 185. Origin of sedimentary rocks; principles involved in interpretation of ancient geography, climates, animals, and plants. Mr. Donaldson

349. Problems in Stratigraphy. I, II. 1-4 hr. Mr. Donaldson

351. Tectonic Elements. II. 3 hr. PR: Geol. 151. Detailed analyses of tectonic elements of North America and Europe. Mr. Burford

359. Problems in Structural Geology. I, II. 1-4 hr. Mr. Burford

366. Problems in Field Geology. I, II. 1-6 hr. Mr. Donaldson

371. Economic Geology: Ore Deposits. II. 3 hr. PR: Geol. 185. Mineral composition, geologic features, and distribution of deposits of principal useful metallic minerals. Mr. Corbett

372. Economic Geology: Nonmetallics. I. 3 hr. PR: Geol. 185. Occurrence, formation, and use of nonmetallic mineral substances, including building materials and chemicals. Mr. Corbett

374. Problems in Economic Geology. I, II. 1-4 hr. Staff

386. Petrology. II. 4 hr. PR: Geol. 285. Composition, texture, occurrence, and origin of rocks. Study of hand specimens and thin sections. Mr. Heald

387. Advanced Petrology. I. 3 hr. PR: Geol. 386. Study of the composition, classification, and origin of igneous and metamorphic rocks. Laboratory work consists of a study of crystalline rocks by microscopical methods. Mr. Heald

388. Problems in Mineralogy and Petrology. I, II. 1-4 hr. Mr. Heald

397, 398. Research. I, II. 1-5 hr., 6 hr. max. Specialized work for advanced students based upon field or laboratory evidence and reported upon in candidacy for master's degree. Staff

399. Research. I, II. 1-6 hr. per sem., 12 hr. max. Open only to Ph.D. candidates. Staff

Geography

Lower Division

7. Introductory Geography. I, II. 3 hr. Study of earth's physical regions as modified and classified by man. Mr. Little

Upper Division

109. Economic Geography I, II. 3 hr. Study of earth's land use patterns and interactions that result from man's economic activities. Mr. Little

116. Geography of Anglo-America. I. 3 hr. Regional characteristics and problems of development. Mr. Little

118. Geography of Western Europe. I. 3 hr. Regional characteristics and problems of development. Mr. Little

Upper Division and Graduate

216. Urban Geography. II. 3 hr. Study of the location, development and change of urban land use patterns. Mr. Little

219. Problems in Geography. I, II. 1-3 hr. per sem. PR: Consent. Mr. Little

HISTORY

Professors Doherty, Caruso, Ennis, Golay, and Summers; Associate Professors Bagby, Barns, Levine, and Steel; Assistant Professors Cubberly, Hamer, Houston, and Rosenbaum.

History majors are required to complete 12 hours in lower-division history courses, and 18 hours in upper-division history courses. Courses in Group A are required of all majors at the lower-division level. Of the 18 hours in upper-division history courses at the 100 course level, the major should divide his course selections equally between Groups B and C below. With the approval of his adviser, he may elect options at higher course levels.

Group A: History 1, 2, 52, 53

Group B: History 149, 150, 151, 152, 153, 154, 155, 156

Group C: History 101, 102, 103, 104, 105, 106, 107, 108

Curriculum for A.B. Degree With Major in History

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Laboratory Sci.	4	Laboratory Sci.	4
Hist. 1	3	Hist. 2	3
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed.	1	Phys. Ed.	1
	14-16		14-16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Laboratory Sci.	4	English Lit.*	3
Foreign language	3	Foreign language	3
Hist. 52	3	Hist. 53	3
Econ. 1	3	Econ. 2	3
Pol. Sci. 1	3	Pol. Sci. 2	3
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed.	1	Phys. Ed.	1
	16-18		16-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
History	6	History	6
Minor	3	Minor	3
Electives	3-6	Electives	6-9
English Lit.*	3		
	15-18		15-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
History	6	History	3-6
Minor	3-6	Minor or	
Electives	6-9	Electives	3-6
		Electives	6-9
	15-18		15-18

*Teacher's Certification.

Courses of Instruction

Lower Division:†

1. Western Civilization from the Earliest Times to the Reformation. 3 hr. Messrs. Cubberly, Ennis, Golay, Hamer, Houston, Levine, and Rosenbaum

†All first- and second-year courses are offered as lower-division "year-courses." These courses run through the year, but in no case is the first half-year a prerequisite for the second half. For example, History 1 is not a prerequisite for History 2. History 1 and 2 make up the introductory first year in history. History 52 and 53 are primarily for sophomores but are open to freshmen.

2. Western Civilization from the Reformation to the Present. 3 hr.
Messrs. Cubberly, Ennis, Golay, Hamer, Houston, Levine, and Rosenbaum

52. Growth of the American Nation to 1865. 3 hr.
Messrs. Bagby, Barns, Caruso, Doherty, Steel, and Summers

53. Making of Modern America, 1865 to the Present. 3 hr.
Messrs. Bagby, Barns, Caruso, Doherty, Steel, and Summers

Upper Division

101. History of Ancient Times: Stone Age to the Fall of Rome. 3 hr. Mr. Hamer

102. Medieval Europe: Fall of Rome to the Renaissance. 3 hr. Mr. Hamer

103. Modern Europe, 1500-1763. 3 hr. Messrs. Cubberly and Hamer

104. Modern Europe, 1763-1871. 3 hr. Messrs. Cubberly and Rosenbaum

105. Modern Europe, 1871 to Present. 3 hr. Messrs. Houston and Rosenbaum

106. British Civilization to 1660. 3 hr. Mr. Levine

107. British Civilization Since 1660. 3 hr. Mr. Levine

108. History of Asia. 3 hr. Mr. Ennis

149. The United States and Pennsylvania. 3 hr. Mr. Barns

150. West Virginia. 3 hr. Mr. Summers

151. The American Colonial and Revolutionary Experience. 3 hr. Staff

152. The Early Republic, United States, 1781 to 1861. 3 hr. Mr. Steel

153. The United States, 1865 to 1918. 3 hr. Mr. Summers

154. Recent America, United States Since 1918. 3 hr. Mr. Bagby

155. Latin American History, Colonial Period and the Wars of Independence. 3 hr. Mr. Caruso

156. Latin America Since 1824. 3 hr. Mr. Caruso

202. Medieval Cultural History. 3 hr. Mr. Hamer

203. The Renaissance and the Reformation. 3 hr. Mr. Hamer

204. English Social History, 14th to 18th Century. 3 hr. Mr. Levine

205. English Social History, 18th Century to the Present. 3 hr. Mr. Levine

206. French Revolution and Napoleon. 3 hr. Mr. Cubberly

207. History of Modern France. 3 hr. Mr. Cubberly

208. History of Russia from Ancient Times to Alexander III. 3 hr. Mr. Rosenbaum

209. History of Russia: The Revolutionary Era and the Soviet Period. 3 hr. Mr. Rosenbaum

210. European Diplomatic History, 1815 to 1919. 3 hr. Mr. Houston

211. European Diplomatic History, 1919 to Present. 3 hr. Mr. Houston

215. Problems of the Pacific. 3 hr. Mr. Ennis

230. The ABC Powers of Latin America. 3 hr. Mr. Caruso

250. Economic and Social Development of West Virginia. 3 hr.
Messrs. Summers and Barns

253. The American Frontier East of the Mississippi. 3 hr. Mr. Caruso

254. The American Frontier West of the Mississippi. 3 hr. Mr. Caruso

256. The Old South. 3 hr. Mr. Steel

257. The American Civil War. 3 hr. Mr. Summers

258. The New South. 3 hr. Mr. Doherty

259. The United States from McKinley to the New Deal, 1898 to 1933. 3 hr. Mr. Barns

260. American Diplomacy to 1901. 3 hr. Mr. Bagby

261. American Foreign Policy and Diplomacy, 1901 to the Present. 3 hr. Mr. Bagby

269. Recent American History, 1933 to the Present. 3 hr. Mr. Barns

279. American Economic History to 1865. 3 hr. Mr. Barns

280. American Economic History Since 1865. 3 hr. Mr. Barns

281. The American Labor Movement. 3 hr. Mr. Barns

290. Intellectual and Social History of the United States to 1876. 3 hr. Mr. Steel

291. Intellectual and Social History of the United States Since 1876. 3 hr. Mr. Steel

Graduate Division

302, 303. Readings, Seminar, in Medieval History. 3 hr. per sem. Mr. Hamer

304, 305. Readings, Seminar, in English History 3 hr. per sem. Mr. Levine

306, 307. Readings, Seminar, in Western European History. 3 hr. per sem. Messrs. Cubberly and Houston

308, 309. Readings, Seminar, in Central European History. 3 hr. per sem. Messrs. Golay and Houston

310, 311. Readings, Seminar in Eastern European History. 3 hr. per sem. Mr. Rosenbaum

312, 313. Readings, Seminar, in Asian History. 3 hr. per sem. Mr. Ennis

349, 350. Problems in Local and Regional History. 3 hr. per sem. Messrs. Barns and Summers

351. 352. Readings, Seminar, in American History, 1492-1789. Messrs. Doherty and Steel

353, 354. Readings, Seminar, in American History, 1763-1865. 3 hr. per sem. Messrs. Doherty and Steel

355, 356. Readings, Seminar, in American History, 1850-1898. 3 hr. per sem. Messrs. Bagby and Doherty

357, 358. Readings, Seminar, in American History, 1890 to the Present. 3 hr. per sem. Messrs. Bagby and Barns

359, 360. Readings, Seminar, in Frontier History. 3 hr. per sem. Mr. Caruso

361. The History of American Agriculture. 3 hr. Mr. Barns

362. The Cleveland Era. 3 hr. Mr. Summers

376. American Historiography. 3 hr. Staff

377. European Historiography. 3 hr. Staff

391, 392. Thesis. Staff

393. 394. Research. Staff

HOME ECONOMICS

Professor Nolan (Adviser) and Staff.

Laboratory Fees

A nonrefundable fee is required of all students who take the following laboratory courses in Home Economics:

Course	*Per Semester*	*Course*	*Per Semester*
Home Econ. 15	$ 5.00	Home Econ. 133	$ 3.50
Home Econ. 115	10.00	Home Econ. 205	5.00
Home Econ. 120	5.00	Home Econ. 230	15.00

Purpose

The curriculum in the Division of Home Economics is designed to provide a professional education for persons expecting to work directly or indirectly with families in improving the quality of their living. Home economics' purpose is to assist individuals and families in developing satisfying relationships within the family and between the family and other community institutions. It contributes to the creation of a physical environment conducive to the development of human resources. Home economists work through existing economic and social organizations to encourage the improvement of goods and services used by consumers and to provide leadership in teaching people to consume to meet their changing needs.

Careers

Home economists find professional opportunities in education, business and public service. They may work directly with families; specific age groups such as children, youth or aged; or individual consumers; and indirectly through educational programs in various communication media (radio, television, journalism). Home economists are employed as teachers, nursery school supervisors, extension workers, 4-H Club agents, YWCA workers, dietitians, home service representatives, radio and television programmers, interior designers, fashion coordinators, and buyers. Increasingly their competencies are being sought by international agencies such as the Peace Corps and other cultural and educational exchange programs.

Facilities

The Division of Home Economics is located in Oglebay Hall on the Main Campus. Its specialized facilities include teaching laboratories for housing and design, clothing and textiles, foods and nutrition, child development; a student lounge and reading room.

Requirements for the Degree

Students have the choice of four options toward a degree in home economics, social science emphasis, physical science emphasis, art emphasis, or general. The degree granted is a bachelor of arts. Students may also pursue a bachelor of science degree with a major in home economics by fulfilling the requirements as set forth in the *Announcements* of the College of Agriculture, Forestry, and Home Economics.

Total hours in Home Economics	36
Total hours outside Home Economics	80
Electives	12
GRAND TOTAL HOURS	128

REQUIRED COURSES

I. University Core

TOTAL	46 hr.

II. Home Economics Professional Core

1. Child Development and Family Relations 114	3 hr.
2. Clothing and Textiles 2 or 102	3 hr.
3. Food and Nutrition 1 or 135	3 hr.
4. Home Management and Family Econ. 210 or 230	3 hr.
5. Housing and Design 3	3 hr.
TOTAL	15 hr.

III. Options

a. Social Science emphasis

1. Additional courses in social science area	12 hr.
2. Additional courses in child development and family relations, home management and family economics areas	14 hr.
3. Electives	41 hr.
TOTAL	67 hr.

b. Physical Science emphasis

1. Additional courses in physical sciences, work in at least two fields	12 hr.
a. Biology, bacteriology, zoology, genetics	
b. Chemistry	
c. Mathematics, statistics, physics	
2. Additional courses in foods and nutrition	15 hr.
3. Speech	3 hr.
4. Electives	37 hr.
TOTAL	67 hr.

c. Art emphasis

1. Additional courses in at least two of the following areas:	21 hr.
a. Accounting, marketing, journalism	
b. Art	
c. Psychology, sociology, history	
2. Additional courses in clothing and textiles and housing and design areas	15 hr.
3. Speech	3 hr.
4. Electives	28 hr.
TOTAL	67 hr.

d. General—Those wishing a Vocational Home Economics teaching certificate must have at least 8 hours in each area of home economics in addition to the general and professional education requirements. (See College of Education *Announcements* for details)

1. One additional 3 hour course in each area plus 6 hours of electives in home economics	21 hr.
2. Electives	46 hr.
TOTAL	67 hr.

Suggested Home Economics Curriculum

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Phys. Educ.	1	Phys. Educ.	1
Foreign language	3	Foreign language	3
Univ. Core B	3	Univ. Core B	3
Univ. Core C	3	Univ. Core C	3
H.Ec. Core, FN 1, TC 2, or HD 3	3	H.Ec. Core, FN 1, TC 2, or HD 3	3
	16		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Phys. Educ.	1	Phys. Educ.	1
Core Group A (Foreign language)	3	Core Group A (Foreign language)	3
H.Ec.—(FN 15, TC 17, HD 23)	3	Univ. courses in H.Ec. Option	9
Univ. courses in H.Ec. Option	6	Univ. Core B or C	3
Univ. Core B or C	3		
	16		16

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
H.Ec. (100 level courses)	6	H.Ec. (100 level courses)	6
H.Ec. Core (TC 102, CDFR 114, FN 135)	3	H.Ec. Core (TC 102, CDFR 114, FN 135)	3
Univ. courses in H.Ec. option	3	Univ. courses in H.Ec. option	3
Univ. Core A*	3	Univ. Core B or C	3
Electives	1-3	Electives	1-3
	16-18		16-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Univ. Core B or C	3	H.Ec.	6
H.Ec. Core (HMFE 210 or 230)	3	Electives**	10-12
Electives**	10-12		
	16-18		16-18

*If two years of foreign language were taken.
**To be chosen in consultation with adviser to fit the student's professional goals.

Courses of Instruction

Food and Nutrition

Associate Professors Yearick and Jones; Assistant Professor Graf.

FN

1. Elementary Nutrition. I, II. 3 hr. Essentials of adequate diet; applications are made with particular reference to needs of college students.

15. Food Selection and Preparation. I, II. 3 hr. PR: 8 hr. of a laboratory science. (2 lec., 1 lab.). Basic principles of food selection, care and preparation. Emphasis is placed on the chemical and physical properties of foods and reactions which occur during processing.

101. Nutrition. I. 3 hr. PR: Biochem. 139 or consent. (2 lec., 1 lab.). The role of food nutrients in the physiological and biochemical processes of the body; nutritional needs of healthy individuals under ordinary conditions and in periods of physiological stress. Offered alternate even years.

108. Quantity Cookery. I. 3 hr. PR: FN 115. (1 lec., two 3-hr. labs. arranged). Application of principles to preparation of food in large quantities. Use of standardized formulae, calculation of costs, and use of institution equipment. Field trip included.

115. Meal Planning, Preparation, and Service. I, II. 3 hr. PR: FN 15 or consent. (1 lec., 3-hr. lab.). Selection and purchase of foods; planning, preparing and serving meals with emphasis on time, energy, and money management.

121. Nutrition and the Family. II. 3 hr. PR: FN 1. A family-centered approach to nutrition, emphasizing the different needs of its members. Opportunity to explore nutritional problems and their solutions through contacts in the community.

128. Institutional Buying. I. 2 hr. PR: FN 108. Producing areas, distribution of food products, specifications, storage and food practices in quantity buying. Observation in local wholesale markets, warehouses, and storage units. Offered in alternate even years. Tour of market facilities in Pittsburgh area required.

135. Food and People. I. 3 hr. A study of the cultural, social, ethnic and economic problems involved in feeding families.

138. Institution Organization and Management. II. 3 hr. PR: FN 108. Principles of organization and management of food service. Field trip included.

148. Laboratory Practice in Institution Management. I, II. 2 hr. PR: FN 138 and consent. Experience under supervision in planning, preparing and serving food in an institution. Selection of place and type of experience to be determined by needs of students.

201. Diet Therapy. II. 3 hr. PR: FN 101, Zool. 271. Adaptations of normal diet for diseases whose prevention or treatment is largely influenced by diet. Offered in alternate odd years.

205. Experimental Cookery. II. 3 hr. PR: FN 15, Chem. 131, (1 hr. lec., 2 2-hr. labs.). Utensils, ingredients, temperature, manipulation, and cooking methods as they affect quality of cooked products. Offered in alternate odd years.

211. Readings In Nutrition. II, S. 1-4 hr. PR: FN 101 or consent. Review of current literature and of present research. Topics depend upon needs and interest of class members.

215. Food Preservation. I. 2 hr. PR: FN 15, (1 1-hr. lec., 1 2-hr. lab.). Fundamental principles involved and actual experience in various methods of food preservation. Offered in alternate odd years.

221. Community Nutrition Problems. I. 2 hr. PR: Consent. (2 hr. lec., field work.) Includes consideration of organizations and agencies through which these problems may be solved.

281. Problems in Nutrition and/or Diet Therapy. 1-4 hr. PR: Consent.

285. Problems in Foods. 1-4 hr. PR: Consent.

288. Problems in Institution Management. 1-4 hr. PR: Consent.

301. Graduate Nutrition Seminar. 1-4 hr. PR: FN 101 and consent. Review and discussion of recent progress in foods and nutrition research.

361. Nutrition Research. 1-6 hr. PR: FN 101, Chem. 6 or 106 or consent. Research in foods and/or nutrition.

Textiles and Clothing

Associate Professor Dietrich; Instructor Weibel.

TC

2. Principles of Clothing Construction. I, II. 3 hr. (Three 2-hr. periods per week). Basic principles of clothing construction including pattern alteration and fitting. Placement tests will be given for sectioning.

17. Textiles. I, II. 3 hr. (2 lec., 1 lab.). Textile fibers and fabrics studied with view to their use in dress and in the home. Characteristics of the major fibers and their suitability to various uses. Study of standard and novelty materials with emphasis on appropriate use and care.

102. Clothing for the Family. I. 3 hr. (3 lec.). Clothing for the family in relation to the social, psychological, and economic factors including a study of the clothing industry, trends, and cultural significance. Field trip included.

117. Textile Buying. II. 2 hr. PR: TC 17. Lecture and laboratory combined. Buying of textiles for all types of clothing and for the household. At least one field trip required.

212. Advanced Clothing Construction. II. 2 hr. PR: TC 232 or consent. Offers opportunity for creative expression and for understanding of pattern design through handling of fabrics on dress form. Costumes are designed, draped and constructed.

217. Readings in Textiles. I. 2 hr. PR: TC 17. Review and discussion of current literature reporting recent research in the field. Offered alternate even years.

222. Tailoring. II. 3 hr. PR: TC 2, 17. Tailoring of suits and coats. Emphasis placed on professional techniques, advanced fitting and construction of garments. Second garment constructed by fast method techniques.

232. Costume Design. I. 2 hr. PR: TC 2, 117. Techniques of figure and fashion drawing. Designing for individuals of various types and ages. Some history of costume included.

282. Problems in Clothing. 1-4 hr. PR: Consent.

287. Problems in Textiles. 1-4 hr. PR: Consent.

Housing and Design

Assistant Professor Ramsey.

HD

3. Introduction to Related Art. I, II. 3 hr. The use of the design elements and the application of the design principles to stimulate imagination and creative ability and to develop discriminating judgment in selection and arrangement of materials used for the individual and the home.

23. Housing Design. I, II. 3 hr. PR: HD 3 or consent. Housing and home planning as they relate to family living. Selection, arrangement, and use of the interior and exterior space of activities carried on, in, and around the home.

123. Interior Design. I, II. 3 hr. PR: HD 23 (2 lec., 1 lab.). The practical and aesthetic aspects of coordinating the furnishings, background, accessories, lighting, and space of a house for family living.

133. Craft Design. I, II. 2 hr. PR: HD 3 or Art 122. Creative design with emphasis on originality, design quality and the development of craft techniques in several of the following: stitchery, weaving, enameling, block printing, silk screening, batik, and other art media.

283. Problems in Housing and/or Design. 1-4 hr. PR: Consent.

Child Development and Family Relations

Professor Brown; Assistant Professors Ayersman and Taylor.

CDFR

106. Child Development. I, II. 3 hr. PR: Psych. 1 or 3, or Ed. 105. (2 lec. and one 2-hr. lab. arr.). Principles of development during childhood including physical, psychological, and social factors affecting behavior. Observation and participation in the University Nursery School.

114. Family Relations. I, II. 3 hr. An introductory course in the study of marriage and the family. Attention is placed particularly on mate selection, the interplay of social roles in family relations, and problems of decision-making and adjustment arising out of the demands of the contemporary social setting.

126. Infant Development. I. 2 hr. (1 lec., 1 lab.). Development characteristics and problems during the prenatal period and the first eighteen months with implications for guidance and care.

224. Family and the Individual in the Community. I. 3 hr. PR: One course in the family, or Sociology, or consent. Social psychology analysis of the individual in the family and in other social systems. Involves the study of role relationships, community processes and attitudes and values as they affect the behavior of the individual.

264. Family Development. I, II. 3 hr. PR: CDFR 114 or consent. A professional course designed to prepare students for work with families in their varying stages of development and different socio-economic levels. Involves intensive study of family relationships as affected by differing stages of the family life cycle, from beginning family through the aging couple. Lecture, discussion, and observation of families.

266. Needs of Adolescents. I, II. 3 hr. A study of adolescent needs as met by the home with contributions of other agencies such as church, school and youth groups. Physical, social and integrative needs will be considered from the standpoint of needs of all family members as well as the individual.

276. Seminar in Child Development. II. 2 hr. PR: Senior standing and consent. A review and discussion of recent literature pertaining to child development. Offered in alternate years.

284. Problems in Family Relations. 1-4 hr. PR: Consent.

286. Problems in Child Development. 1-4 hr. PR: Consent.

376. Thesis in Child Development. 6 hr. PR: HEEd. 309 and consent. Thesis for the degree of Master of Science in Home Economics.

Home Management and Family Economics

Assistant Professor Jack; Instructor Armstrong.

HMFE

10. Elementary Management. I, II. 2 hr. The application of management to the use of time, money, energy, and other resources to achieve individual goals.

120. Demonstration Techniques. I, II. 2 hr. PR: Min. of 4 hr. in each of four areas of home economics, or consent. Lecture demonstration as means of presentation of demonstrations suitable for secondary schools, and use with adult groups.

130. Principles of Home Management. I, II. 2 hr. An intermediate course in management as applied to the family and homemaking. Detailed consideration of family goals and resources.

210. Family Economics. I, II. 3 hr. PR: Senior or graduate standing. Management of the family's money resources. Consideration of the economic problems of families, of planned spending and saving, and of the role of the consumer.

230. Home Management, Principles and Application. I, II. PR: Upper-division standing. Study and application of management in a variety of situations faced by the family with opportunity to integrate knowledge from other courses.

250. Household Equipment. I, II. 2 hr. Selection, arrangement, use and care of equipment for various situations and for different income levels. Laboratory and discussion.

280. Problems in Home Management and/or Family Economics. 1-4 hr. PR: Consent.

Home Economics Education

Professor Brown.

Ed. 262. Vocational Home Economics in Secondary Schools. II. 3 hr. PR: (or parallel): Ed. 120, 124, 163, 25 hr. in Home Economics.

HEEd.

209. Evaluation in Home Economics. II. 3 hr. PR: 30 hr. of home economics, 7 hr. of Education. Experience in selecting, devising, and using evaluation devices for appraising student progress toward desired goals in home economics education. Offered alternate odd years.

219. Adult Education in Homemaking. I. 3 hr. PR: 30 hr. of home economics, and 7 hr. of Education. Current trends and present activities. Organization of adult classes; development of unit outlines; consideration of teaching metods; illustrative material and bibliography. Offered alternate even years.

279. Seminar in Home Economics Education. II. S. 3 hr. PR: Senior standing and 6 hours of Education. A review and discussion of recent literature pertaining to home economics at the junior and senior high school levels and the college and adult levels based on the history of the home economics movement from the Lake Placid Conference in 1909 to the present time.

309. Research Methods. 2 hr. Adaptations of research techniques to problems in home economics. For students writing problems or thesis.

319. Home Economics Curriculum. 3 hr. PR: Experience in teaching home economics and consent. Selection and organization of learning experiences in home economics. Practices and techniques currently used for curriculum planning and construction.

329. Supervision in Home Economics. 2 hr. PR: Teaching experience and consent. Designed for home economics teachers preparing to serve as supervising teachers in "off-campus" training centers. Function of supervision and organization of supervised teaching program. Techniques for helping students in training for teaching home economics.

360. Problem Report for the Degree of Master of Home Economics. 1-3 hr. PR: HEEd. 309.

389. Problems in Home Economics Education. 1-4 hr. PR: Consent.

Honors Program

100. Home Economics Honors Program. 3 hr. PR: Second-semester junior standing; at least 2 academic years in residence at West Virginia University; overall grade-point average 3.0 or better; grade-point average in home economics courses 3.20 or better. Individual special problems for undergraduates of second-semester junior standing who show special ability and interest in one of the following fields: child development, home economics education, or nutrition. Admission dependent only upon the recommendation of the adviser and the Honors Course Committee. Hours arranged.

110. Home Economics Honors Program. 3 hr. PR: First-semester senior standing; overall grade-point average 3.0 or better; grade-point average in home economics courses 3.25 or better, and Home Economics 100. Individual special problems for undergraduates of first-semester senior standing who show special ability and interest in one of the following fields: child development, home economics education, or nutrition. Admission only upon the recommendation of the adviser and the Honors Course Committee. Hours arranged.

120. Home Economics Honors Program. 3 hr. PR: Second-semester senior standing; overall grade-point average 3.0 or better; grade-point average in home economics courses 3.25 or better; Home Economics 110. Individual special problems for undergraduates of second-semester senior standing who show special ability and interest in one of the following fields: child development, home economics education, or nutrition. Admission only upon the recommendation of the adviser and the Honors Course Committee. Hours arranged.

LIBRARY SCIENCE

Professors Munn and Reese; Assistant Professors Lewis and Patterson.

Courses in undergraduate library science are designed to meet the needs of those students preparing to qualify for State certification as teacher-librarians in public schools, those who desire a general program of library science, and those who are interested in preparing for graduate study in librarianship. The student planning to serve as a school librarian must complete the minimum number of hours of Education courses required for certification. Students wishing to enter other fields of library science should plan their programs to include appropriate courses.

Certain courses, such as "Using Books and Libraries," will be valuable to any University student. "Library Materials for Children" and "Selection of Books and Related Materials for Young People" will be helpful to prospective teachers.

Qualities essential to school librarianship are adaptability, understanding, and appreciation of young people and their needs as well as a thorough knowledge of books, materials, and sources.

The Department of Library Science and the College of Education cooperate in offering graduate training in school librarianship. The degree of Master of Arts in Education is awarded to those successfully completing the program. For entrance requirements and courses of study consult the Graduate School *Announcements.*

Curriculum for A.B. Degree With Major in Library Science

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Laboratory Sci.	4	Laboratory Sci.	4
Lib. Sci. 1	3	Electives	2-5
Electives	2	Phys. Ed.	1
Phys. Ed.	1	Mil. or Air Sci. 2	3
Mil. or Air Sci. 1	2		
	18		15-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 3	3	English 4	3
Foreign language	3	Foreign language	3
Soc. Sci. or Pol. Sci.	4	Soc. Sci. or Pol. Sci.	4
Lib. Sci. 101	3	Electives	5
Electives	2	Phys. Ed.	1
Phys. Ed.	1	Mil. or Air Sci. 4	2
Mil. or Air Sci. 3	2		
	16-18		16-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Lib. Sci. 223	3	Lib. Sci. 224	3
Humanities 141 Great Books I	3	Humanities 142 Great Books II	3
Electives	12	Electives	15
	14-18		14-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Lib. Sci. 222	3	Lib. Sci. 227	3
Lib. Sci. 226	3	Electives	15
Lib. Sci. 225	3		
Electives	9		
	18		18

Courses of Instruction

1. Using Books and Libraries. I, II. 3 hr. Planned to give working knowledge of library facilities, particularly of the University Library. General reference sources, basic principles of cataloging, and departments of the library are studied. A course that is useful to any student in the University and required for majors in library science. Mr. Patterson

101. Reference and Bibliography. I, II. 3 hr. PR: Lib. Sci. 1 or consent. Basic reference books, dictionaries, encyclopedia, indexes, yearbooks, and other reference materials are studied and evaluated, with emphasis on the theory and practical experience of reference work. Mr. Patterson

203. Library Materials for Children. I, II, S. 3 hr. A survey of the development of children's literature with emphasis on modern books. Evaluation of the aids and standards for selection of books and materials in this field. Investigation of children's reading interests and practice in storytelling are included. Discussions, reports and special projects. Miss Reese and Miss Lewis

205. Selection of Books and Related Materials for Young People. I, S. 3 hr. A survey of adolescent literature and other library materials adapted to the needs of high school students. Critical evaluation of standard, classic and current books together with aid and criteria for selection. Reading interests and the problem of the retarded and nonreader will be considered. Miss Lewis

207. School Library Organization and Administration. I, S. 3 hr. A study of the organization and administration of school libraries including planning of rooms, equipment, routines and schedules. Attention is given to special phases of the work such as publicity and displays, reading, guidance, handling of audio-visual materials and the work of student assistants. Lectures, readings, discussions and special problems. Designed to meet the needs of the librarian and teacher-librarian. Miss Lewis

221. Public and Regional Library Service. S. 3 hr. PR: Consent. Principles governing the administration of tax-supported public libraries and the development of larger units of service. Objectives, functions, control, finances, building and equipment, personnel, special services. Mr. Patterson

222. Field Practice. I, S. 3 hr. Designed to promote an understanding of total library programs and the interrelations of library methods and skills found in the different libraries. Offered after basic courses have been completed. Miss Reese

223. Cataloging and Classification. I, S. 3 hr. Basic principles of cataloging and classification combined with practical experience in processing the various types of books and materials. Problems peculiar to the teacher-librarian will be considered. Miss Reese

224. History of Books and Libraries. II, S. 3 hr. A survey course, including the development of the book from early manuscript form, history of printing, printers, book illustration, bindings, and the library and its development. Mr. Munn

225. Books and Reading for Adults. II, S. 3 hr. Reading and evaluation of representative books in broad subject fields. Stress on both modern titles and the classics for the adult reader. Emphasis on book reviewing, both written and oral, with a study of book selection aids. Class discussions, problems, term reports. Miss Reese

226. Literature of the Social Sciences. I, S. 3 hr. PR: Consent. An approach to the selection and use of books and materials in the social sciences. Mr. Patterson

227. Literature of the Humanities. II, S. 3 hr. Bibliographical and other reference sources in the major subject areas of the humanities, including religion, philosophy, fine arts, music, and literature. Mr. Patterson

228. Literature of Science and Technology. II, S. 3 hr. PR: Consent. A course designed to give the student a good working knowledge of the increasingly complex literature of science and technology. Staff

230. Library Resources for the School Curriculum. II. 3 hr. Broadened experiences in both library and outside resources that lend themselves to curriculum enrichment, including guidance, remedial reading, text books, community resources, all phases of audio-visuals, etc. Presented to elementary and secondary teachers as well as librarians to help them give more effective service. Miss Lewis

235. Library in the Elementary School. II. 2 hr. PR: Lib. Sci. 203. Organization and administration of library service for children in the elementary school including consideration of housing equipment, selection and organization of books and other materials, instruction in the use of the library, student assistants, audio-visual materials, and publicity. Miss Reese

Graduate Division

304. Advanced Cataloging and Classification. II, S. 3 hr. PR: Lib. Sci. 223. A more detailed study of classification including both Dewey and Library of Congress classifications as they pertain to books and nonbook materials found in college, university, special library collections, and large public libraries. Miss Reese

309. Seminar. I or II, S. 3 hr. Required of all majors in Library Science. A course covering special problems in the library field, varying according to the group and its needs. Staff

310. Special Topics. I, II. 3 hr. PR: Lib. Sci. 309. A thorough study of some phase of library science based on the needs and interest of the individual, culminating in the Problem Report required for M.A.L.S. candidates. Staff

311. Problem Report. (Ed. 360). 3 hr. PR: Ed. 301, Lib. Sci. 309. Required for the Master of Arts in Education degree candidate. Staff

MATHEMATICS AND ASTRONOMY

Professors Stewart, Cunningham, Davis, Vehse, and Vest; Associate Professor Peters; Assistant Professors Cochran and Gould; Instructors Carlin, Coover, Davis, Dosier, Easton, Gilbert, Godfrey, Heflin, Hennen, Hogan, Long, Loudin, McClung, Miller, Skocik, and Strong.

A student must have a grade-point average of 2.0 or higher in mathematics courses taken in the lower division before he will be admitted to the upper division as a mathematics major.

Lower-division students who plan to become majors in the Department, who also wish to meet the requirements for teacher certification, should so inform their lower-division adviser, and plan their schedules very carefully in order to avoid loss of time.

The foreign language should be French, German, or Russian.

Mathematics majors must complete 18 hours of mathematics beyond calculus. The usual courses are taken from among Math. 235, 236, 237, 240, 243, 251, and 252. The minor may be physics, or some other subject approved by the adviser.

Suggested Mathematics Program

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Math. 3	3	Math. 15	4
Math. 4	3	Mil. or Air Sci. 2	2
Mil. or Air Sci. 1	2	Phys. Ed.	1
Phys. Ed.	1	Distribution requirements	3-6
Distribution requirements	3-6		
	16-18†		16-17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Math. 116	4	Math. 117	4
Physics 111	5	Physics 112	5
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Ed.	1	Phys. Ed.	1
Distribution requirements	3-6	Distribution requirements	3-6
	17-18		17-18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 240	3	Math. 235	3
Math. 236	3	Math. 237	3
Distribution requirements	0-3	Distribution requirements	0-3
Minor and electives	9	Minor and electives	9
	18		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 243	3	Math. 252	3
Math. 251	3	Minor and electives	15
Minor and electives	12		
	18		18

†Men required to take both military science or air science and physical education should postpone taking science until the second or third semester. A distribution requirement may then be taken in the Freshman year.

Courses of Instruction

MATHEMATICS

The following two courses are offered to enable students to remove entrance conditions in mathematics. Each course meets three times per week throughout the

school year. Neither course carries University credit, although each is considered equivalent to three hours per semester in calculating student course loads.

Self-instruction programmed course materials in Mathematics 0, 1, and 7 are available on a rental basis.

Pre-College

0. Elementary Algebra. I and II. ½ unit per sem. A two-semester course equivalent to first-year high school algebra. Staff

1. Geometry. I and II. ½ unit per sem. A two-semester integrated course covering the usual material of high school plane and solid geometry. Staff

Lower Division

2. Algebra. I, II. 3 hr. PR: 1 unit of algebra. Staff

3. College Algebra. I, II. 3 hr. PR: 1½ units of algebra and a satisfactory performance on the American College Test or Math. 2, and 1 unit of geometry. Staff

4. Plane Trigonometry. I, II. 3 hr. PR: 1½ units of algebra and a satisfactory performance on the American College Test or Math. 2, and 1 unit of geometry. Staff

6. Arithmetic for Elementary Teachers. I, II. 3 hr. Staff

7. Solid Geometry. I, II. ½ unit. PR: Plane geometry. Staff

8. Elementary Mathematics. I, II. 3 hr. PR: 1 unit of algebra. For students planning to teach Commerce. Staff

14. Elementary Analysis. I, II. 2 hr. PR: At least 2 units of algebra, 1 unit of geometry, ½ unit of trigonometry, and successful completion of placement examination. Elements of algebra and trigonometry. Not open to students with credit for Math. 3 and/or Math. 4. Staff

15. Calculus I. I, II. 4 hr. PR: 2 units of algebra, ½ unit trigonometry, and successful completion of placement test, or Math. 3 and 4. Introduction to the calculus with analytic geometry. Staff

21, 22. Introduction to Mathematics. I, II. 3 hr. per sem. PR: 1 unit of algebra. Reasoning, development of elementary mathematics, function and limit concepts, topics in modern mathematics, the nature of mathematics and its relation to modern civilization. Mr. Peters

Upper Division

110. Digital Computer Programing. I, II. 1 hr. PR: Math. 3. The preparation and execution of computer programs. Mr. Cochran

116. Calculus II. I, II. 4 hr. PR: Math. 15. Completion of plane analytic geometry as needed for geometric applications of the calculus; techniques of integration; and further interpretations of the definite integral. Staff

117. Calculus III. I, II. 4 hr. PR: Math. 116. Infinite Series, solid analytic geometry, calculus of two or more variables, and short introduction to differential equations. Staff

220, 221. Numerical Analysis. I, II. 3 hr. per sem. PR: Math. 117 and pre- or corequisite Math. 110 or I.E. 180, or consent. The composition, propagation and generation of error. The discrete finite difference calculus. Polynomial approximation including interpolation, numerical differentiation and integration, numerical solution of differential equations, least squares, Chebyshev polynomials. Non-polynomial approximation. Numerical solution of equations and systems of equations. Eigenvalue problems, Random numbers, and Monte Carlo Methods. Mr. Cochran

225. Theory of Games. II. 3 hr. PR: Math. 117 or consent. Elements of Matrix Algebra and Probability. Theory of Games, including decision theory, linear and dynamic programing, and strategy. Mr. Cochran

232. Mathematical Statistics. II. 3 hr. PR: Math. 117. Discrete and continuous variables; correlation, regression, sampling theory, normal, chi-square, t, and F distributions; significance tests; analysis of variance. Mr. Dosier

235. Foundations of Algebra and Analysis. II. 3 hr. PR: Math. 117 or consent. Algebra of sets; propositional calculus; elementary topology, real number system; functions. Mr. Cunningham

236. Introduction to Algebraic Structures. I, II. 3 hr. PR: Math. 117 or consent. A basic study of groups, rings, integral domains, fields, and polynomial rings. Special consideration of the real and complex fields and related topics. Mr. Peters

237. Introduction to Linear Algebra. II. 3 hr. PR: Math. 117 or consent. A study of vector spaces, matrices, determinants, linear transformations, linear programing, bilinear and quadratic forms, and related topics. Mr. Peters

238. Modern Geometry for Teachers. II. 3 hr. PR: Math. 117 or consent. For high school teachers. Foundations of geometry. Special topics from Euclidean projective, and non-Euclidean geometries. Mr. Cochran

240. Differential Equations. I, II. 3 hr. PR: Math. 117. First course. Types of ordinary differential equations of first or higher degree and of first or higher order. Solutions and applications. Not open to students with credit for Math. 253. Staff

242. Advanced Real Calculus. I. 3 hr. PR: Math. 117. This is a preparatory course for Math. 256. Fundamental principles of limits, derivatives, integrals and series. Mr. Vest

243. Projective Geometry. II. 3 hr. PR: Math. 236. Projective, affine, and metric geometries of the line, plane, and space; conics and quadrics. Mr. Davis

245. Vector Analysis. I. 3 hr. PR: Math. 240 or 253. Vector definitions and operations, differentiation, operator del, integration, generalized coordinates, irrotational and solenoidal vectors, electrostatic fields, potentials. Staff

247. Theory of Numbers. S. 3 hr. PR: Math. 117. Divisibility, distribution of primes, theory of congruences, theory of quadratic residues, arithmetical properties of the roots of unity, Diophantine equations, and the prime number theorem. Mr. Gould

248. History of Mathematics. S. 3 hr. PR: Math. 15. Survey of the development of mathematics through the calculus, with emphasis on the mathematical theories and techniques of each period and their historical evolution. Mrs. Easton

251, 252. Advanced Calculus. I, II. 3 hr. per sem. PR: Math. 117. A study of sequences, limits, continuity, definite integral, convergence, differentiation, differentials, functional dependence, multiple integrals, line and surface integrals, and differential forms. Mr. Cunningham

253. Advanced Course in Applied Mathematics. I. 3 hr. PR: Math. 117. Determinants and matrices; ordinary differential equations of the first order, linear differential equations with constant coefficients, simultaneous linear differential equations, applications; mechanical and electrical circuits; Fourier series and integrals. Mr. Vest

254. Advanced Course in Applied Mathematics. II. 3 hr. PR: Math. 253. Finite differences; partial differential equations, Bessel functions and Legendre polynomials; vector analysis. Mr. Vest

256. Introduction to Complex Variables. II. 3 hr. PR: Math. 242 or 252. An introductory course intended primarily for students in engineering and physics. Elementary principles, conformal mapping, and applications. Mr. Vest

259. Introduction to the Laplace Transform. II. 3 hr. PR: Math. 240 or 253. An introduction at the undergraduate level to the theory and applications of the Laplace transform. Mr. Vest

261, 262. Special Topics. S. 2-4 hr. PR: Math. 117 or consent. Primarily for secondary school teachers. Topics in modern mathematics. Content may vary with the needs of the student. Staff

263. Special Topics. II. 2-3 hr. PR: Math. 262 or consent. Sets and relations; axiomatization of a mathematical system; algebraic structure; real number system; and critical study of the foundations of Euclidean geometry. Mr. Peters

264, 265. Foundations of Algebra. S. 2 hr. PR: Differential and integral calculus. Not open to students with credit for Math. 236. Introduction to algebraic structures: rings, the integral domain of integers, properties of the integers, fields, polynomials over a field, groups; matrices; linear systems; vector spaces; vector geometry; linear transformations; and linear programming. Staff

266, 267. Foundations of Geometry. S. 2 hr. PR: Differential and integral calculus. A study of affine, projective, Euclidean, and non-Euclidean geometries. Mr. Cunningham and Staff

268, 269. Probability and Statistics. S. 2 hr. PR: Differential and integral calculus. Finite sample space, measure of the set of outcomes and probability of events, independent trials, functions on the sample space, approximations to the binomial distribution, elementary statistical inference, continuous sample spaces, limit theorems, stochastic processes, statistical models and applications. Staff

Graduate Division

308. Theory of Probability. I. 3 hr. PR: Math. 117. Fundamental theorems. Development of density and distribution functions in the discrete and continuous cases. Classical problems and solutions. Moments, characteristic functions, limit theorems. Applications. Mr. Stewart

309. Group Theory. II. 3 hr. PR: Math. 236 or consent. Order, index, coset, normal subgroup, factor group, homomorphism; direct product; fundamental theorem of Abelian groups; endomorphism and automorphism; groups with operators; normal series; and Jordan-Holder theorem. Mr. Peters

311, 312. Introductory Topology: I, II. 3 hr. per sem. PR: Math. 252 or consent. An axiomatic treatment of topological spaces including metric spaces. A detailed study of convergence, connectivity, continuity, and related topics. Mr. Hogan

313. Advanced Differential Equations. II. 3 hr. PR: Math. 240, 252. Second-order linear equations, Riccati equations, complex variables. Series solutions. Equations of Fuchsian type, hypergeometric equation, confluence of singularities. Classical equations, applications. Mr. Vest

314. Tensor Analysis. II. 3 hr. PR: Math. 245, 252. Vector concept developed from standpoint of algebraic invariants, surface geometry, tensor operators, curvature tensor. Ricci and Bianchi identities, applications of tensors to physical phenomena. Mr. Stewart

315. Calculus of Variations. II. 3 hr. PR: Math. 240, 252. Maximum and minimum value of an integral, shortest distance, the brachistochrone problem, surfaces of revolution of minimum area, conditions for a relative minimum. Applications. Mr. Vest

320, 321. Special Functions. I, II. 3 hr. PR: Math. 240, 252. Operational techniques; generalized hypergeometric functions; classical polynomials of Bell, Hermite, Legendre, Noerlund, etc. Introduction to recent polynomial systems. Current research topics. Mr. Gould

331, 332. Theory of Partial Differential Equations. I, II. 6 hr. PR: Math. 240, 252, or equiv. Elementary concepts; Cauchy problems; the Cauchy-Kowalewski theorem; general existence theorems; associate surfaces; classification into elliptic, parabolic, and hyperbolic types; conditions required of coefficients for solvability; techniques for solution; distribution theory; and numerical methods. Mr. Vest

351, 352. Algebraic Geometry. I, II. 3 hr. per sem. PR: Math. 236, 243. Characteristic properties and representations of curves and surfaces, algebraic correspondences; linear systems; enumerative geometry. Mr. Cunningham

353. Linear Algebra. II. 3 hr. PR: Math. 236 or consent. Review of theory of groups and fields; linear vector spaces including the theory of duality; full linear group; bilinear and quadratic forms; and theory of isotropic and totally isotropic spaces. Mr. Peters

357. Fourier Series and Partial Differential Equations. I. 3 hr. PR: Math. 240 (or 253), 252 (or 242). Partial differential equations of physics, orthogonal sets; the generalized Fourier series; Fourier series, and their properties; Fourier integrals; Boundary value problems; Bessel functions and Legendre polynomials; uniqueness of solutions. Mr. Vest

358. Operational Methods in Partial Differential Equations. II. 3 hr. PR: Math. 240 (or 253), 252 (or 242). Laplace transformation, properties and elementary applications; problems in partial differential equations, complex variable; problems in heat condition, mechanical vibrations, etc, Sturm Liouville systems. Fourier transforms. Mr. Vest

360, 361. Differential Geometry and Theory of Surfaces. I, II. 3 hr. per sem. PR: Math. 240, 243. Metric properties of space curves and surfaces by differential methods. Parametric representation, curvature, torsion, trihedrons, geodesics, transformations, conformability, developability, ruled surfaces. Mr. Davis

362, 363. Introduction to Modern Algebra. I, II. 3 hr. PR: Math. 236 or consent. Concepts from set theory and the equivalence of the Axiom of Choice, Zorn's Lemma, and the Well-ordering Theorem; a study of the structure of groups, rings, fields, and vector spaces; elementary factorization theory; extensions of rings and fields; modules and ideals; and lattices. Mr. Peters

364, 365. Theory of Functions of Complex Variables. I, II. 3 hr. per sem. PR: Math. 240, 252. Complex numbers; functions of a complex variable; fundamental theorems of Cauchy; conformal representation with applications; analytic continuation; calculus of residues; Gamma, Bessel, and elliptic functions. Mr. Vehse

366, 367. Higher Plane Curves. I, II. 3 hr. per sem. PR: Math. 243. Algebraic plane curves. General theory of curves, singularities, relationships, associated curves; detailed study of curves of third and fourth order. Staff

372, 373. Line Complexes and Cremona Transformations. I, II. 3 hr. per sem. PR: Math. 243. Line coordinates, null system, systems of complexes, congruences, surface theory, and mapping. Plane Cremona transformations, introduction to general space theory, opportunities for research. Mr. Davis

374, 375. Algebraic Surfaces. I, II. 3 hr. per sem. PR: Math. 243. Mapping of quadric, cubic, quartic, and quintic surfaces on the plane; space transformations, equivalence, postulation; curves on a surface, adjoint systems, invariants. Mr. Davis

376, 377. THEORY OF FUNCTIONS OF A REAL VARIABLE. I, II. 3 hr. per sem. PR: Math. 235, 236, and 252. Reviews of elementary point set concepts. Necessary and sufficient conditions under which operations of previous analytical subjects are valid. Different theories of integration. Mr. Cunningham

380. THESIS. I, II. 3 hr. Staff

ASTRONOMY

Upper Division

106. DESCRIPTIVE ASTRONOMY. II. 3 hr. Mr. Cochran

216. ASTRONOMY FOR TEACHERS. S. 3 hr. Introduction to astronomy with special emphasis on the needs of physical science teachers and science club directors. Not open to students with credit for Astronomy 106. Mr. Cochran

255. MATHEMATICAL ASTRONOMY. II. 3 hr. PR: Astronomy 106, Math. 240. Development of the implications of Kepler's Laws and Newton's Law of Gravitation. Mr. Cochran

PHILOSOPHY AND RELIGION

Professors: LAMBERT and CRESSWELL; Associate Professor MINOR.

Philosophy seeks to discover the defensible foundations of belief and action.

PROGRAM FOR PHILOSOPHY MAJORS

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Philos. 4	3	Art, Lib. Sci., or Speech	3
English 1	3	English 2	3
Foreign language	3	Foreign language	3
Mathematics	3	Mathematics	3
Phys. Educ.	1	Phys. Educ.	1
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
	16		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Hist. 1	3	Hist. 2	3
Philos. 106	3	Philos. 112	3
Foreign language	3	Foreign language	3
Econ., Pol. Sci. or Soc. Sci.	3-4	Econ., Pol. Sci. or Soc. Sci.	3-4
Laboratory Sci.	4	Laboratory Sci.	4
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Phys. Educ. (W)	1	Phys. Educ. (W)	1
	17-19		17-19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Psych. 1	3	Minor Subject	3
Philosophy Elective	3	Philosophy Electives	6
Minor Subject	3	Upper-Division Electives	6-9
Upper-Division Electives	6-9		
	15-18		15-18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Philosophy Electives	6	Philosophy Electives	6
Minor Subject	3	Minor Subject	3
Upper-Division Electives	6-9	Upper-Division Electives	6-9
	15-18		15-18

COURSES OF INSTRUCTION

PHILOSOPHY

Lower Division

4. INTRODUCTION TO PHILOSOPHY. I or II. 3 hr. A first course in philosophy designed to acquaint the student with the nature of philosophy. A prerequisite for nearly all courses in Philosophy. Staff

Upper Division

105. Oriental Philosophy. I or II. 3 hr. PR: Philos. 4. An exposition of the major philosophies of Asia. Mr. Cresswell

106. Symbolic Logic 1. I. 3 hr. PR: Philos. 4 or consent. A study of the logic of statements, the logic of predicates, and the logic of identity and descriptions. Mr. Lambert

107. Ethics. I or II. 3 hr. PR: Philos. 4, or consent. An exposition of various theories on the nature of obligation, right and good, and the function of punishment. Staff

108. Social and Political Philosophy. I or II. 3 hr. PR: Philos. 4, or consent. An application of moral concepts to questions concerning the individual and the state. Mr. Minor

112. History of Ancient and Medieval Philosophy. I. 3 hr. PR: Philos. 104, or consent. An exposition of the major philosophies of the Western World from the pre-Socrates to the 16th Century. Mr. Cresswell

113. History of Modern Philosophy. II. 3 hr. PR: Philos. 104 or consent. An exposition of the major philosophies of the Western World from Descartes to J. S. Mill. Mr. Cresswell

114. Contemporary Philosophy 1. I. 3 hr. PR: Philos. 4 or consent. An exposition of the origins of modern analytic philosophy. Mr. Lambert

116. Theory of Knowledge 1. I. 3 hr. PR: Philos. 4, or consent. A study of the major philosophical problems associated with perception and casuality. Staff

118. Philosophy of Art. I. 3 hr. PR: Philos. 4. An examination of the nature of art and beauty. Mr. Minor

Upper Division and Graduate Courses

205. Philosophy of Mind 1. I or II. 3 hr. PR: Philos. 4 and Philos. 116. Typical problems in this course have to do with whether there are minds, the difference between minds and bodies, other minds, and the analysis of mental concepts. Staff

206. Symbolic Logic 2. I or II. 3 hr. PR: Philos. 106. Formalization of the material in the previous term, the concepts of consistency, decidability and completeness, and the elementary theory of classes (sets). Mr. Lambert

207. Philosophy of Language 1. I or II. 3 hr. PR: Philos. 106, Philos. 116 or consent. An analysis of the nature of meaning and language. Staff

208. Philosophy of Religion. I or II. 3 hr. PR: Philos. 4 and Philos. 112 or 113. An attempt to discover the defensible foundations of religion. Mr. Cresswell

210. Philosophy of Science 1. I or II. 3 hr. PR: Philos. 4 and Philos. 106, or consent. An analysis of the conceptual and methodological foundations of science. Mr. Lambert

211. Greek Philosophy. I or II. 3 hr. PR: Philos. 4, 112, 113. Staff

212. Philosophy of History. I or II. 3 hr. PR: Philos. 104 and Philos. 112, 113 or consent. Typical theoretical problems such as the nature of historical explanation, relativism and the status of speculative principles of history. Staff

213. Kant. I or II. 3 hr. PR: Philos. 104, 112, and 113. Staff

214. Contemporary Philosophy 2. I or II. 3 hr. PR: Philos. 104, and Philos. 114 or 116. An exposition of contemporary schools of analytic philosophy. Mr. Lambert

216. Theory of Knowledge 2. I or II. 3 hr. PR: Philos. 4, Philos. 106, and Philos. 114 or Philos. 116. An analysis of the concepts of necessity and truth. Staff

217. Metaphysics. I or II. 3 hr. PR: Philos. 4, Philos 112 and 113. An analysis of the nature of existence and reality. Staff

220. Rationalism. I or II. 3 hr. PR: Philos. 4, 112, and 113. Descartes, Spinoza, and Leibniz. Staff

221. Empiricism. I or II. 3 hr. PR: Philos. 4, 112, and 113. Locke, Berkeley, and Hume. Staff

222. Philosophy of Mathematics. I or II. 3 hr. PR: Philos. 206 or consent. An examination of contemporary viewpoints in the foundations of mathematics. Staff

233. Theory of Value. I or II. 3 hr. PR: Philos. 4 and Philos. 107. A study of the normative disciplines in relation to human conduct. Mr. Minor

224. Seminar. 2 hr. A study of selected topics. Staff

225. Problems in Philosophy. I or II. 3 hr. PR: Philos. 4 and consent. Staff

*Graduate Division**

301. Induction and Rational Belief. I or II. 3 hr. Staff

302. Philosophy of Science. I or II. 3 hr. Staff

303. Theory of Knowledge. I or II. 3 hr. Staff

304. Symbolic Logic. I or II. 3 hr. Staff

305. History of Philosophy. I or II. 3 hr. Staff

306. Metaphysics. I or II. 3 hr. Staff

307. Seminar 1. 3 hr. Staff

308. Seminar 2. 3 hr. Staff

309. Problems in Philosophy. I or II. 3 hr. Staff

310. Ethics. I or II. 3 hr. Staff

311. Philosophical Foundations of Psychology. I or II. 3 hr. Staff

312. Thesis. 2-6 hr. Staff

*All courses numbered in the 300 series require departmental consent for admission.

PHYSICS

Professors Thomas and Rexroad; Associate Professors Jefimenko, Pavlovic, and Williamson; Assistant Professors Levine, Mendiratta, and Vehse; Instructors Farr and Wilson; Instructors (part-time) Ball and Errington.

Laboratory Fees

A nonrefundable fee is required of all students who take the following laboratory courses in Physics:

Course	Per Semester	Course	Per Semester
Physics 1	$ 5.00	Physics 102	$ 5.00
Physics 2	5.00	Physics 116	10.00
Physics 11	5.00	Physics 257	10.00

Various courses offered in Physics are designed to meet the needs of students in the Colleges of Education, Engineering, Arts and Sciences, Agriculture, and the School of Pharmacy.

Suggested Curriculum for A.B. Degree in Physics

The Bachelor of Arts degree is intended for those students who wish a foundation in physics but with a wider choice of elective subjects than is possible for those wishing to enter the field at a professional level. A total of 124 hours exclusive of Military or Air Science, Physical Education, and English 0 are required. At least two of the following are required: Physics 225-226, 231-232, 233-234, and at least two of the accompanying laboratories.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed. 1	1	Phys. Ed. 2	1
English 1	3	English 2	3
Math. 3	3	Math. 15	4
Elective	3	Elective	3
Elective	3	Language	3
†Language	3		
	18		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Physics 11	4	Physics 102	4
Math. 116	4	Math. 117	4
Chem. 3	5	Chem. 4	5
Language	3	Language	3
	18		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 200	3	Elective	3
Physics 100	3	Physics 100	3
Physics 200	3	Physics 200	3
Phys. 200 Lab.	1	Phys. 200 Lab.	1
Elective	3	Elective	3
Elective	3	Elective	3
	16		16

FOURTH YEAR

First Sem.	*Hr.*	*Second. Sem.*	*Hr.*
Physics 200	3	Physics 200	3
Physics 200 Lab.	1	Physics 200 Lab.	1
Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
	16		16

†If Math. 4 (Trigonometry) is required, postpone language one semester German, Russian, and French are recommended.

Suggested Curriculum for B.S. Degree in Physics

The Bachelor of Science degree is designed for those students who expect to prepare for graduate work or to enter physics as a profession upon completion of the bachelor's degree. A minimum of 139 credit hours is required for graduation.

The first two years of the curriculum for the B.S. degree are the same as for the A.B. degree listed above.

The following are required: Physics 225-226, 231-232, 233-234 and two of the accompanying laboratories. At least 6 hours of a second language (German, Russian or French) are required, 9-12 hours are recommended.

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Math. 200	3	Math. 200	3	Physics 200	3	Physics 200	3
Physics 100	3	Physics 100	3	Physics 200	3	Physics 200	3
Physics 200	3	Physics 200	3	Elective	3	Elective	3
Physics 200	3	Physics 200	3	Elective	3	Elective	3
Phys. 200 Lab.	1	Phys. 200 Lab.	1	Elective	3	Elective	3
Phys. 200 Lab.	1	Phys. 200 Lab.	1	Elective	3	Elective	3
2nd Language	3	Language	3				
	17		17		18		18

Courses of Instruction

Lower Division

1. Introductory Physics. I, II. 4 hr. PR: Plane geometry and algebra. Required of all students whose curriculum calls for introductory physics. Mechanics, sound, heat. Staff

2. Introductory Physics. I, II. 4 hr. PR: Physics 1. Electricity, magnetism, and light. Staff

11. General Physics. I, II. 4 hr. PR: Math. 15. Not open to students who have credit for Introductory Physics. Mechanics, sound, and heat. Staff

Upper Division

102. General Physics. I, II. 4 hr. PR: Physics 11, Math. 15. Not open to students who have credit for Introductory Physics. Light, electricity, and magnetism. Staff

109, 110. A Problem Course in General Physics. I, II. 2 hr. per sem. Pre- or corequisite: Calculus. Open to students who have taken Introductory Physics or equiv.; not open to students who have taken General Physics. Mr. Ball

113, 114. Introductory Electronics. I, II. 3 hr. per sem. PR: 1 year of college physics. Mr. Errington

116. Photography. II. 3 hr. PR: 1 year of college physics, 1 year of college chemistry. The physics and chemistry of photography with practical application. Mr. Farr

117. Descriptive Meteorology. I. 3 hr. PR: 1 year of college physics. Description of the atmosphere and its weather. Reading and analysis of weather maps. Weather observations. Mr. Williamson

118. Physical Meteorology. II. 3 hr. PR: Physics 117 or equiv. The physics of the atmosphere. Analysis of surface and upper air charts. Forecasting. Mr. Williamson

124. Modern Physics for Engineers. I, II. 4 hr. PR: Physics 11, 102. Aspects of physics of current engineering interest. Staff

125, 126. Modern Physics for Engineers. I, II. 3 hr. per sem. PR: Physics 11, 102. Aspects of physics of current engineering interest. Staff

201, 202. Special Topics. I, II. 1-3 hr. per sem. Staff

213. Introductory Electronics. S. 3 hr. PR: 1 year of college physics. Primarily for Education majors, not for graduate credit for science majors. Mr. Errington

218. Dynamic Meteorology. II. 3 hr. PR: Physics 117 or equiv. and differential equations. Dynamics of lower atmosphere relating to transport and dispersion of foreign matter. Mr. Williamson

221. Optics. II. 3 hr. PR: Calculus, Physics 11, 102, or equiv. Work with optical instruments, spectrometry, interferometry, and polarization. Mr. Vehse

225, 226. Modern Physics. I, II. 3 hr. per sem. PR: Calculus, Physics 11, 102, or equiv. Particle analysis, phenomena connected with the structure of the atom, and nucleus. Not open to those who have credit for 125 and 126. Mr. Mendiratta

231, 232. Theoretical Mechanics. I, II. 3 hr. per sem. PR: Calculus, Physics 11, 102, or equiv. Theorems and problems in intermediate mechanics. Mr. Williamson

233, 234. Introductory Electricity and Magnetism. I, II. 3 hr. per sem. PR: Calculus, Physics 11, 102, or equiv. Electrostatic, magnetostatics, network analysis, introduction of electrodynamics, and applications. Mr. Jefimenko

241, 242. Physics Laboratory. I, II. 1 hr. To accompany Physics 231, 232. Staff

243, 244. Physics Laboratory. I, II. 1 hr. To accompany Physics 233, 234. Mr. Jefimenko

245, 246. Physics Laboratory. I, II. 1 hr. To accompany Physics 225, 226. Staff

247, 248. Physics Seminar. I, II. No credit. Required of junior, senior and graduate physics majors. Staff

254. Outline of Modern Physics. S. 3 hr. PR: 10 hr. college physics, 1 year college math. Selected topics in modern physics. Primarily for Education majors, not open to physics majors. Staff

255, 256. Workshop for Physics Teachers. SI, SII. 3 hr. PR: 1 year college physics, 1 year college mathematics. Techniques of apparatus construction and demonstration. Primarily for Education majors, not open to physics majors. Mr. Williamson

257. Photography. SI. 3 hr. PR: 1 year physics or equiv. Primarily for Education majors, not open to physics majors. Mr. Farr

258. Light. SII. 3 hr. PR: 1 year physics or equiv. Primarily for Education majors, not open to physics majors. Staff

261, 262. Molecular Physics. I, II. 3 hr. per sem. PR: Physics 225, 226. Molecular spectra, molecular structure and solid state physics. Mr. Rexroad

271, 272. Solid State Physics. I, II. 3 hr. PR: Physics 225, 226. Mr. Pavlovic

283. Thermodynamics. I. 3 hr. PR: Calculus, Physics 11, 102, or equiv. Application of first and second laws of thermodynamics to physical systems. Mr. Vehse

284. Kinetic Theory. II. 3 hr. PR: Calculus, Physics 11, 102, or equiv. Boltzman distribution, viscosity, diffusion, thermal conductivity, specific heat. Mr. Pavlovic

287, 288. Introduction to Mathematical Physics. I, II. 3 hr. per sem. PR: Calculus, Physics 11, 102, or equiv. Boundary value problems in vibration, heat conduction, hydrodynamics, special relativity. Mr. Thomas

Graduate Division

321, 322. Physical Optics. I, II. 3 hr. per sem. PR: Physics 221, and a course in differential equations. Mr. Vehse

331, 332. Advanced Classical Mechanics. I, II. 3 hr. PR: Calculus, Physics 231, 232. Lagrangian and Hamiltonian formulation of mechanics, Hamilton-Jacobi theory, small oscillations. Mr. Rexroad

333, 334. Advanced Electricity and Magnetism. I, II. 3 hr. PR: Physics 233, 234, and a course in differential equations. Wave propagation, electrodynamics of charged particles. Mr. Jefimenko

341, 342. Research Seminar. I, II. 3 hr. PR: Consent. Discussion of problems encountered in particular fields of research, and their relation to other areas of physics. Staff

351, 352. Quantum Mechanics. I, II. 3 hr. per sem. PR: Physics 225, 226. Schroedinger's equations, hydrogen atom, perturbation, molecular forces. Mr. Levine

353. Advanced Quantum Mechanics. I. 3 hr. PR: Physics 351, 352. Study of relativistic theory, many electron systems, introduction to quantum electrodynamics. Mr. Levine

363, 364. Nuclear Physics. I, II. 3 hr. per sem. PR: Physics 225, 226. Theory of nuclear forces, transformation, energy levels. Mr. Thomas

383. Statistical Mechanics. II. 3 hr. PR: Physics 283, 352. Classical statistics, Boltzman, F-D, and B-E statistics, theory of fluctuations. Mr. Vehse

397, 398. Research. I, II. 1-6 hr. per sem. PR: Consent. Staff

POLITICAL SCIENCE

Professors Williams, Frasure, and Stewart; Associate Professors Gilkey, Hayhurst, and Ross; Assistant Professors Drake, Gibson, Rice, and White; Assistant Professor (part-time) Reynolds.

NATURE AND OBJECTIVES OF THE POLITICAL SCIENCE CURRICULUM

The political science curriculum provides a systematized course of study of the origin, basis, and nature of the state in its many and varied aspects. These include: principles, organization, and structure of political institutions, both domestic and foreign; the processes and functioning of government; interrelationships between the political institution on various levels of government; political behavior; the control of government instrumentalities and the means for holding its agents responsible; and the identification and analysis of public problems falling within the range of government. Course offerings in the Department of Political Science provide a basic general knowledge of the field, as well as more extensive and intensive training in the specialized areas of political science, particularly on the senior and graduate levels.

Primary departmental objectives may be classified under four principal headings as follows:

1. To develop an understanding of the role of government in modern society, thus contributing to a general, liberal education and to preparation of students for a career in the public service.
2. To impart a basic knowledge and understanding of the techniques and processes of government and administration to those persons who look forward to a career in the public service.
3. To provide pre-professional training for students who are preparing to enter the legal profession.
4. To provide advanced and specialized instruction, through the Ph.D. degree, for persons who wish to enter teaching or research in the field of political science.

The political science curriculum, therefore, enables the major in this field to gain an understanding of the political society in which he lives and also to plan his academic program so as to prepare himself for a career of public service.

Courses Suggested for Political Science Majors

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Laboratory Sci.	4	Laboratory Sci.	4
Foreign language	3	Foreign language	3
Electives, Group 1	3-4	Electives, Group 1	3-4
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
Phys. Ed.	1	Phys. Ed.	1
	14-17		14-17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pol. Sci. 1	3	Pol. Sci. 2	3
Foreign language	3	Foreign language	3
Hist. 52	3	Hist. 53	3
Econ. 1	3	Econ. 2	3
Psych. 1 or Sociol. 1	3	Philos. 4	3
Mil. or Air Sci. 3	2	Electives	1-2
Phys. Ed.	1	Mil. or Air Sci. 4	2
	17-19	Phys. Ed.	1
			17-20

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pol. Sci. 150	3	Pol. Sci. 120	3
Pol. Sci. 200	3	Pol. Sci. electives	6-9
Pol. Sci. electives	3-6	Elective, Group 3	3
Elective, Group 3	3	Elective, Group 5	3
Elective, Group 4	3	Elective, minors	3
Elective, minors	3		
	18-20		18-21

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pol. Sci. 170	3	Pol. Sci. 171	3
Pol. Sci. electives	6-9	Pol. Sci. electives	6-9
Electives, minors	6-9	Electives, minors	6-9
	18-21		18-21

REQUIREMENTS FOR MAJORS

Hours. Undergraduate majors in political science are required to take at least 26 hours of upper-division course work in the department. There must be a first minor consisting of 12 hours of upper-division courses, normally in history, economics, sociology, psychology, or philosophy, and a second minor of 6 hours of upper-division work in a related field.

Required Courses. Each undergraduate major is required to take Political Science 1 (3 hr.) or 2 (3 hr.). Departmental majors are encouraged to take both Political Science 1 and 2.

Distribution of Courses. The major in political science should work out his program in such a way as to secure a well-rounded knowledge of the field, as well as to concentrate in some particular area. Although the 26 hours of upper-division work in political science is the minimum requirement, students should take at least 33 hours.

The following are distribution requirements for an undergraduate major in political science:

1. At least one upper-division course in each of the six groups into which the offerings of the department are divided.
2. At least three upper-division courses in some one group.

GROUPINGS OF UPPER-DIVISION COURSES BY FIELDS

I. *American National, State, and Local Government*
Pol. Sci. 111, 113, 120, 210, 211, 213, 218, 221, 225, 226, 310, 311, 314, 320-321, 324, 325-326.

II. *Politics and Policy Development*
Pol. Sci. 130, 231, 232, 233, 234, 330-331, 334.

III. *Public Administration*
Pol. Sci. 140, 241, 244, 245, 246, 344, 346-347.

IV. *Foreign and Comparative Government*
Pol. Sci. 150, 250, 251, 252, 253, 254, 255, 256, 351-352, 354.

V. *International Relations, Organizations and Law*
Pol. Sci. 160, 261, 262, 263, 264, 265, 266, 361-362, 364.

VI. *Political Theory*
Pol. Sci. 170, 171, 272, 273, 274, 374, 375-376.

Courses of Instruction

Lower Division

1. Elements of Democratic Government. I, II. 3 hr. Introduction to government. Origin, forms, and functions of the state; organization and forms of government; and the relations of groups and individuals to the state. Primarily for freshmen. Staff

2. The American Federal System. I, II. 3 hr. A survey course in American national government. Intended primarily for freshmen and sophomores. Staff

Upper Division

101. Introduction to Government. I, II. 3 hr. (Exclusively for students in the College of Agriculture and the College of Engineering). A consideration of the basic principles and operation of national, state, and local government in the United States. Staff

111. Functions of American National Government. I, II. 3 hr. The activities of the executive branch of government, particularly as they relate to social and economic development; expansion of government activities and services since 1932. Mr. Stewart

113. American Constitutional Principles. II. 3 hr. U.S. Constitution as interpreted by the Supreme Court. Treatment is analytical rather than historical. Text supplemented by some leading cases. Primarily for pre-law students. Mr. White

120. State and Local Government. I, II. 3 hr. Survey of the legal basis, structure, and operation of state and local governments, their relations with each other and their place in the federal system. Mr. Hayhurst

130. Political Parties and Electoral Processes. I, II. 3 hr. The nature of political parties. Public regulation of parties and electoral processes. A close examination of suffrage, nominating devices, campaign procedures, and the conduct of elections. Mr. Ross

140. Introduction to Public Administration. I, II. 3 hr. Introductory study of the development, organization, procedures, processes, and human relations factors of governmental administration in American democracy. Mr. Stewart and Mr. Drake

150. Contemporary European Governments. I, II. 3 hr. Comparative analysis by countries of constitutions, political structures, and functions, with major emphasis upon the United Kingdom, France, Russia, and West Germany. Mr. Williams

160. International Relations. I, II. 3 hr. Introduction to contemporary world politics. Just enough background to make present-day international affairs more understandable. Mr. Frasure

170. History of Political Thought: Plato to Machiavelli. I. 3 hr. Examination of major political ideas from the Greeks to sixteenth century with special emphasis upon development of natural law and western conception of justice. Mr. Williams and Mr. Gibson

171. History of Political Thought: Machiavelli to Bentham. II. 3 hr. PR: Pol. Sci. 170 or consent. Analysis of the political ideas which developed from

the separation of faith and reason, the culmination of this movement in rational integral liberalism, and the origins of modern conservatism as expounded by Edmund Burke. Mr. Williams and Mr. Gibson

200. Research Materials and Techniques in Political Science. I. 3 hr. A study of basic source materials in political science and of the techniques and methods of governmental research. Mr. Reynolds

210. American Political Institutions. I. 3 hr. PR: Pol. Sci. 2 or consent. Development of the Constitution, Congress, the Presidency, and the Supreme Court as institutions with special attention to current problems and issues. Mr. Stewart and Mr. Drake

211. Problems of American National Government. II. 3 hr. This course is intended to give recognition to the major contemporary problems of government. Extensive readings of background materials as well as current literature. Mr. Stewart and Mr. Drake

213. American Constitutional Law. II. 3 hr. PR: Pol. Sci. 2 or consent. Basic principles of American constitutional law as developed through interpretation with special emphasis on constitutional theories and national development. Mr. Gilkey

218. Government and Business. I or II. 3 hr. Pol. Sci. 2 or consent. An examination of government regulations of the economy dealing with the origin and development of public politics, constitutional and policies basis of regulation, relationships between political and economic institutions and processes, and an evaluation of the consequences of regulatory policies. Mr. Hayhurst

221. West Virginia Government and Administration. I, II. 3 hr. A study of the organization and operation of the state government of West Virginia. Mr. Ross

225. Municipal Government. II. 3 hr. Legal basis, structure, operation, and problems of municipal government and municipal relations with other governmental units. Mr. Hayhurst

226. Problems of State and Local Government. I. 3 hr. An examination of current problems of state, county, and municipal governments. Students are expected to have completed Pol. Sci. 120 or its equiv. Mr. Ross

231. History of Political Parties. I. 3 hr. An examination of the growth of political parties in the United States. Analysis of issues in presidential campaigns as they relate to political party development. Mr. Ross

232. Public Opinion and Propaganda. II. 3 hr. Analysis of techniques of sampling and measuring public opinion; detection of propaganda; the nature of propaganda and methods of the propagandist. Mr. Ross

233. Current Political Issues. I. 3 hr. An examination of political party platforms and the major issues of the political campaign. Students will be expected to examine background materials thoroughly. Mr. Ross

234. The Legislative Process. II. 3 hr. Structure and organization of legislative bodies. Powers of legislature. Detailed study of lawmaking procedures. The influence of outside forces. Mr. Ross

241. Administrative Organization and Management. I. 3 hr. PR: Pol. Sci. 140 or consent. Analysis of governmental administrative organization and reorganization and of such management functions as leadership, planning, coordination, and financial organization. Mr. Stewart and Mr. Drake

244. Administrative Law and Regulations. II. 3 hr. PR: Pol. Sci. 140 or consent. Study of the law of administration, primarily by the case method, covering administrative powers, procedure in administrative adjudiciation and rulemaking, discretion, judicial control, and administrative liability. Mr. Gilkey

245. Public Administration and Policy Development. II. 3 hr. PR: Pol. Sci. 140 or consent. Analysis of decision-making and policy development in the administrative process by the case method. Mr. Stewart and Mr. Drake

246. Comparative Public Administration. II. 3 hr. A survey of the theory and practice of public administration in diverse cultures and national political systems. Mr. Drake

250. Comparative Government. I. 3 hr. A comparative study of modern political institutions with particular attention to European constitutional government and politics. Mr. Williams

251. Modern Dictatorships. II. 3 hr. Politically undemocratic governments. Provides background of dictatorship generally, followed by treatment of several modern dictatorships. Mr. Williams

252. British Government and Politics. I. 3 hr. Intensive study of British government with emphasis upon both internal and external policies, primarily during the twentieth century. Mr. Williams

253. The Commonwealth of Nations. II. 3 hr. An analysis of the political relationships between the members of the Commonwealth and a comparative study of the governments of the Dominions with particular reference to Canada and Australia. Mr. Williams

254. Governments of Asia. I. 3 hr. A survey of contemporary politics and governments of Asia. Mr. Gibson

255. Governments of Latin America. I. 3 hr. A comparative study of the major nations of Latin America. Mr. Gilkey

256. Governments of the Middle East. II. 3 hr. An examination of the governments and political forces of the Middle East. Mr. Rice

261. International Organization. I. 3 hr. Emphasis will be placed upon agencies created since the close of World War II. Some reference to development of international law and League of Nations. Mr. Rice

262. Specialized Agencies of the United Nations. II. 3 hr. A detailed treatment of the specialized agencies and related institutions. Mr. Rice

263. Public International Law. I. 3 hr. Law governing relations among nations, including development of rules, means of enforcement, and conflicts between theory and practice. Mr. White

264. Conduct of American Foreign Relations. I. 3 hr. Basic concepts about and factors influencing the decision-making process and the conduct of United States foreign policy, with special attention to the problems of ends and means of a democracy, pressure interest groups (i.e., the military-industrial complex and the administrative bureaucracy); recent theories, analytical tools, and methodology in the problem areas of conflict-resolution, nonconsensus situations, and inter-nation influence; regional patterns, problems, and prospects of United States policy in Europe, Africa, Asia, the Middle East, and the Soviet bloc since 1945. Mr. Rice

265. Basic Factors in Power Politics. II. 3 hr. PR: Pol. Sci. 2 or consent. Analysis of factors of power in the nation-state system. Evaluation of nationalism and concepts of national interest in modern world politics. Mr. Rice

266. Soviet Foreign Policy. I. 3 hr. PR: Pol. Sci. 150 or 160 or consent. Basic concepts about and factors influencing choice in the formulation and execution of Soviet foreign policy; the development and present patterns in Soviet foreign relations with key states and the United Nations; possible problems and prospects in future Soviet relations. Mr. Rice

272. Recent and Contemporary Political Thought. I. 3 hr. An examination of integral liberalism and the forces leading to the decline of liberalism and a critical analysis of the fascist and communist ideologies with their threat to the traditions of western civilization embodied in Christianity and conservatism. Mr. Williams

273. American Political Theory. II. 3 hr. PR: Pol. Sci. 171 or consent. A survey of major political ideas and their influence upon American society and government from the seventeenth century to the present. Mr. Gibson

274. Problems in Contemporary Political Thought. II. 3 hr. An intensive study of current trends in political thought through examination of the works of contemporary writers. Mr. Williams and Mr. Gibson

Graduate Division

300, 301. General Seminar in Political Science. I, II. 1 hr. each. Open to properly qualified students in conjunction with Directed Reading and Research Courses for the presentation of papers for critical consideration; some attention will be given to methodology and bibliography. Staff

310, 311. Directed Reading and Research in American National Government. I, II. 2-4 hr. each. Mr. Stewart and Mr. Gilkey

314. Seminar in American National Government. I. (Every fourth year). 3 hr. PR: Consent. Mr. Stewart

320, 321. Directed Reading and Research in State Government. I, II. 2-4 hr each. PR: Pol. Sci. 120 or consent. Mr. Hayhurst and Mr. Ross

324. Seminar in State and Local Government. I. (Every fourth year). 3 hr. PR: Consent. Mr. Ross

325, 326. Directed Reading and Research in Local Government. I, II. 2-4 hr. PR: Pol. Sci. 225 or consent. Mr. Hayhurst

330, 331. Directed Reading and Research in Politics. I, II. 2-3 hr. PR: Pol. Sci. 130 or consent. Mr. Ross

334. Seminar in Politics and Policy Development. I. (Every fourth year). 3 hr. PR: Consent. Mr. Ross

344. Seminar in Public Administration. I. (Every fourth year). 3 hr. PR: Consent. Mr. Stewart

346, 347. Directed Reading and Research in Public Administration. I, II. 2-4 hr. each. PR: Pol. Sci. 140 or consent. Mr. Drake

351, 352. Directed Reading and Research in Comparative Governments. I, II. 2-4 hr. each. Mr. Williams

354. Seminar in Comparative Government. II. (Every third year). 3 hr. PR: Consent. Mr. Williams

361, 362. Directed Reading and Research in International Relations. I, II. 2-4 hr. each. Mr. Frasure and Mr. Rice

364. Seminar in International Relations. II. (Every third year). 3 hr. PR: Consent. Mr. Rice

374. Seminar in Political Theory. II. (Every third year). 3 hr. PR: Consent. Mr. Williams

375, 376. Directed Reading and Research in Political Theory. I, II. 2-4 hr. each. Mr. Williams and Mr. Gibson

380. Thesis. I, II. 2-6 hr. Staff

PSYCHOLOGY

Professors Curtis and Dana; Associate Professors Carruth, Cross, Decker, Rankin, Shafer, and Thomas; Assistant Professors Ferguson, Ourth, and Quarrick; Instructors Cole, Voigt, and Willis.

Laboratory Fees

A nonrefundable fee is required of all students who take the following laboratory course in Psychology:

Course	*Per Semester*
Psychology 104	$8.00

Courses in psychology are designed for one or more of the following ends: to promote a better understanding of human nature and behavior; to lay a foundation for graduate professional training; and to inculcate useful skills of psychological technology.

The emphasis of pre-professional undergraduate training in psychology should be on broad education in the humanities and in the behavioral, biological, physical and social sciences. During the first two years the student will meet most of the general requirements of the University and of the College. He will also take Psychology 1 or 3, 103, 104, and 130. During the junior and senior year he will complete the work of his major and minor and round out his education through electives. If the student intends to pursue psychology as a career, excessive undergraduate specialization is discouraged.

Courses of Instruction

Lower Division

1. Introduction to Psychology. I, II. 3 hr. Survey of general psychology. (Not for those who have credit for Psych. 3). Staff

3. General Psychology. I, II. 4 hr. Open to freshmen. Lectures and lab. Fundamentals of behavioral science with emphasis on biological aspects and research methods. Not for those who had Psych. 1. Mr. Shafer

20. Psychology of Personal Efficiency. I, II. 1 hr. For students whose scholastic achievement is below capacity. Diagnostic and remedial practice in areas which hamper personal or academic efficiency. For freshmen and sophomores; others by consent. Staff

Upper Division

103. Experimental Psychology. I. 3 hr. PR: Psych. 1 or 3. Principles of experimental method, psychophysics and sensory processes surveyed at intermediate level. Mr. Thomas

104. Experimental Psychology. II. PR: Psych. 1 or 3. Lectures and lab. Principles of learning surveyed at intermediate level. Lab exercises and demonstrations. Staff

115. Leadership and Human Relations. I and II. 3 hr. PR: Psych. 1, or 3 and 4. Leadership training, motivation and morale, human relations, safety, industry and society. Mr. Curtis and Mr. Decker

116. Social Psychology. I. 3 hr. PR: Psych. 1, or 3 and 4. A study of the social factors which determine human behavior. The relationship of class, race, culture, social structure and other group phenomena to individual behavior. Other topics include: attitudes, public opinion, propaganda, mass media of information and national character. Mr. Rankin

130. Statistical Methods in Psychology. II. 3 hr. PR: Psych. 1 or 3 and 4. Analysis and interpretation of psychological data. Mr. Thomas

201. Physiological Psychology. I. 3 hr. PR: Psych. 103, 104 and Zool. 271 or equiv. The organic basis for psychological activities such as perception, emotion, motivation, and learning. Mr. Shafer

205. Individual Differences. II. 2 hr. PR: One course in psychology. Nature and extent of the differences among individuals in psychological traits such as intelligence and personality, as influenced by heredity, schooling, age, sex, and culture. Primarily for students in psychology and education. Mr. Cross

206. Learning and Motivation. I or II. 3 hr. PR: Psych. 103, 104 or equiv. Survey of experimental data in the area of learning and motivation. Special emphasis on contemporary learning theory. Mr. Shafer

214. Job Analysis. I or II. 3 hr. PR: Psych. 244 or I.E. 140. Instruction and supervised practice in preparation and use of job analyses. For students of psychology, engineering, management, or rehabilitation counseling. Mr. Cross

222. Child Behavior. I. 3 hr. PR: Psych. 1 or 3. Growth trends in behavior through adolescence, including development in the physical, intellectual, emotional, social, and personality areas. Mr. Carruth

225. Group Psychometric Testing. I. 3 hr. PR: Psych. 1 or 3, and 130. Theory underlying the construction of group tests of intelligence, aptitudes, interests, personality, and attitudes. Practice in administering, scoring, and interpreting them. Mr. Cross

226. Advanced Experimental Psychology. II. 3 hr. PR: Psych. 103, 104, 130. Lectures and laboratory. Design of psychological experiments; psychophysics of audition and vision. Mr. Shafer

216. Attitudes and Propaganda. II. 3 hr. PR: Psych. 1 or 3 or consent. Includes: the nature of attitudes and opinions, attitude measurement, opinion changing, propaganda use and analysis, the social psychology of mass media, democratic values and public opinion. Designed to meet the needs of students from a variety of fields as well as psychology—especially sociology, political science, and journalism. Mr. Rankin

218. Psychology of Personality. I or II. 3 hr. PR: Two courses in psychology, or consent. Critical consideration of major theories of personality, including Freudian, neo-Freudian, learning theory, and trait theory. The basis and logic of personality theorizing will be stressed. Mr. Rankin

229. Abnormal Psychology. I, II. 3 hr. PR: Psych. 1 or 3. A consideration of the major behavior disorders and the various psychological, surgical, chemical, and medical treatments thereof. Mr. Quarrick

233. Exceptional Children. II. 3 hr. PR: Child or educational psychology. Study of children who present psychological problems because of: (1) exceptional mental retardation or advancement; (2) organic disabilities having behavior consequences, such as cerebral palsy or deafness; (3) disorders of conduct associated with atypical personality functioning. Of special interest to those who regularly deal with children as teachers, nurses, etc. Mr. Quarrick

236. Psychology of Adjustment. I, II. 3 hr. PR: Psych. 1 or 3, or consent. Dynamic principles of human personality adjustment. Mr. Ourth

238. Introduction to Clinical Psychology. I or II. 3 hr. PR: Psych. 218, 236, or consent. The contribution of clinical psychology to understanding people. Foundation for advanced courses in clinical methods and skills. Of interest to advanced undergraduates and graduates in education, guidance, personnel, and social work as well as professionally-oriented students in psychology. Mr. Dana

240. History of Psychology. II. 3 hr. PR: Psych. 1 or 3. Traces the development of the science and concepts of psychology from their origin in philosophy, physiology, and medicine up to the modern era. Mr. Curtis

242. Advanced Social Psychology. I. 3 hr. PR: Psych. 116 or consent. A consideration of contemporary theory and practice in social psychology. Mr. Rankin

244. Personnel Psychology. I. 3 hr. PR: Psych. 1, or 3 and 4, and a course in business, psychological, or engineering statistics. Application of psychological principles and techniques for selecting personnel, evaluating performance, analyzing jobs and workers. Mr. Decker

245, 246. Seminar. I, II. 1 or 2 hr. Critical study of selected topics. Staff

260. Statistical Methods in Psychology. I. 3 hr. PR: Psych. 130 or equiv. Sampling theory, probability, further parametric and non-parametric statistics. Mr. Thomas

270. Group Dynamics. (Same as Sociol. 270). I or II. 3 hr. PR: Introductory course in psychology or sociology, or permission. An interdepartmental course, combining psychological and sociological approaches, in which the dynamics of groups in operation are considered. The following subjects will be treated: leadership, informal communication and group pressures, the relation of group aims to group organization, and the effect of the group on personality. Attention is given to recent researches and to practical applications. Staff

Graduate Division

301, 302. Special Problems in Research. I, II. 1-3 hr. per sem. Staff

303. Master's Thesis. I, II. 1-6 hr. per sem. Staff

305, 306. Directed Study. I, II. 1-3 hr. Directed reading and research in special areas. Staff

310. Projective Techniques. I. 3 hr. PR: Psych. 218, 229, 324, and consent. Administration, scoring, and interpretation of Rorschach and Thematic Apperception Test. Mr. Dana

311. Advanced Projective Techniques. II. 3 hr. PR: Psych. 310 or equiv. Supervised practice in interpretation and report writing. Mr. Dana

314. Practicum in Industrial Interviewing. I. 3 hr. PR: Psych. 244 or 115. Includes a survey of literature concerned with industrial interviewing, a review of personal history data found to be significant in industrial selection, and intensive study of interview techniques, practice and recorded interviews, by the student with critiques by the instructor. Mr. Decker

316. Counseling and Psychotherapy. I or II. 3 hr. PR: Psych. 218, 229, or equiv. Individual and group psychotherapy. Mr. Ourth

317. Practicum in Counseling and Psychotherapy. I or II. 1-3 hr. PR: Psych. 316 or equiv. Supervised experience in psychotherapeutic techniques used by the psychologist in a clinic setting. Staff

322. Infancy, Childhood, Adolescence. II. 3 hr. PR: Psych. 218, 222, 229, Soc. 243, or equiv. A theoretical study of psychological growth. Comparative and cross-cultural research is emphasized. Mr. Ourth

324. Individual Intelligence Testing. II. 4 hr. PR: Psych. 122 and 225, or Educ. 375, or consent. Theory and practice in Binet, Wechsler, and other individual tests of cognitive functioning. Mr. Quarrick

329. Behavior Pathology. II. 3 hr. PR: Psych. 218, 229, or consent. Advanced study of theories and evaluation of accumulated evidence concerning the

etiology and dynamics of severe behavior pathology. Recommended prior to or concurrent with Psych. 310. Mr. Carruth

338, 339. Clinical Psychology. I, II. 1-3 hr. PR: Psych. 324 and consent. Supervised practice in use of psychological techniques in a clinic setting. Mental testing, interviewing parents, personality diagnosis, test interpretation and reports, play techniques with children, case presentations at staff meetings. Emphasis is on the multi-discipline approach at the University Counseling Center. Staff

345, 346, 347, 348. Seminar. I, II. 1 or 2 hr. Critical study of selected topics. Staff

353, 354. Teaching Practicum. I, II. 1-3 hr. PR: Consent. Supervised practice in college teaching of psychology. Staff

360. Analysis of Variance. II. 3 hr. PR: Psych. 130, 260, or consent. A discussion of tests of homogeneity of variance, parametric and non-parametric analysis of variance, and analysis of covariance. Implications of these techniques for experimental design will be considered. Mr. Thomas

361. Correlation Analysis. I. 2 hr. PR: Psych. 130. A study of the correlational techniques used in research and development in psychology with practice in the application of the methods to typical problems. The methods studied will include product-moment, biserial, tetrachoric, partial, multiple, and others. Mr. Decker

REHABILITATION COUNSELING

Coordinator Brown; Assistant Coordinator Downes.

The Department of Rehabilitation Counseling provides graduate prrofessional education for counseling in rehabilitation. The College of Arts and Sciences through its Departments of Psychology and Social Work, and the Guidance Department of the College of Education cooperate in the interdepartmental curriculum.

Graduates are prepared to enter private and public agencies and facilities providing services to handicapped persons.

Admission requirements and procedures are set forth in the *Announcements* of the Graduate School.

Courses of Instruction

General Prerequisites: Twenty-one hours in the social sciences, or education. The 300 series courses are designed as an integrated program for students working toward the M.S. degree in rehabilitation. Courses are open to other students by consent and as required by their curricula.

370. Seminar in Medical-Vocational Aspects. I. 3 hr. PR: 21 hr. in social sciences or education. Contribution of medicine in the rehabilitation process from referral to vocational placement of handicapped persons. Mr. Downes

384. Seminar in Occupations and Placement. I, II. 3 hr. PR: 21 hr. in social sciences or education. A study of occupational theory, placement process, personnel practices, job evaluation, and medicolegal aspects of work as they pertain to rehabilitation. Mr. Downes

386. Special Problems. II, S. 1-3 hr. Rehabilitation in theory and techniques in problems such as blindness, epilepsy, and mental retardation. Course also provides for concentrated study in special institutes. Mr. Downes

387. Clinical Practice. I, II, S. 1-12 hr. PR: Consent, following at least one academic semester in classroom. Clinical practice (internship) in selected agencies, rehabilitation centers, clinics, or hospitals conducting an organized

program of services for the mentally or physically handicapped. Such practice will be under the direct supervision of faculty and agency personnel. Messrs. Brown and Downes

388. Introduction to Vocational Rehabilitation. I. 3 hr. A study of problem and extent of disablement, historical development and legal basis, concepts, processes, and case development techniques in vocational rehabilitation as a public service to the mentally and physically handicapped. Mr. Brown

389. Seminar. I, II, S. 1 hr. PR: Minimum of 5 semester-hours of clinical practice. Course is designed to provide opportunity for critical study in selected areas in light of clinical practice experience. The professional responsibility of counselors is covered. Mr. Brown

390. Counseling Practicum. I, II. S. 3 hr. PR: Graduate standing and consent. Counseling techniques dealing with the theory and practice of rehabilitation Counseling. Messrs. Brown and Downes

391. Directed Study and Research. I, II, S. 1-3 hr. PR: Consent. Directed reading and/or research in special rehabilitation areas. Mr. Brown

SOCIAL WORK

Professors Scher and Fulton; Associate Professor Mudd; Assistant Professors Ellison and Schneider; Associate in Psychiatric Social Work Harvey; Associate in Rehabilitation Social Work Blackwell; Lecturers Bateman and Sacks.

The Department of Social Work provides graduate professional education for social work, courses for employed workers, and an undergraduate curriculum designed to provide the student with a basic understanding of social welfare as a system of social institutions which has been developed to meet human needs.

Contemporary American social welfare programs are integrally related to our history and current social and political changes. Welfare programs are of such significance that every educated citizen should have some knowledge of their origins, philosophy and structure. This basic knowledge is offered in a group of 200 level courses which have the following specific objectives:

1. To assist the student to understand social welfare as a system of social institutions in a context of social change and changing values in a democratic society.
2. To assist the student in the development of a capacity for critical assessment of the meaning of important social welfare policies and programs for human well-being in the United States and elsewhere.
3. To assist the student in the integration of other knowledge, drawn from academic studies and life experiences, into a personal point of view regarding the rights and responsibilities of the individual in American society.
4. To assist the student to gain a general, non-specialized, understanding of the structure and function of social work as a professional service in social welfare programs.

The Graduate Social Work Program

The graduate program in Social Work requires two years of full-time study, which includes class work on campus and supervised practice in affiliated social agencies. This course of study and practice leads to the degree of Master of Social Work. The program is accredited by the Council on Social Work Education, the central standard–setting body for the field.

Admission requirements and procedures are set forth in the Graduate School *Announcements* and in the Department of Social Work *Announcements*.

Courses for Employed Workers

The Department of Social Work offers a series of courses which are designed to meet the needs of men and women employed in health, education and welfare

agencies. Such courses are given both on campus and in extension. Those listed on the 200 level are open to properly qualified men and women who are working toward their bachelor's degree or toward master's degrees in related fields. Courses in this group on the 300 level are open only to workers with the Master's Degree in Social Work.

Courses of Instruction

212. The Heritage of American Social Welfare. I. 3 hr. A general introduction to social welfare in the United States. History, philosophy, programs and problems. Social welfare as a social institution. The American way in welfare. The emphasis is on what the citizen needs to know about welfare problems and solutions. Staff

213. Social Services for Families and Children. II. 3 hr. PR: S.W. 212. The history, philosophy and structure of American programs in the fields of family services and child welfare. Staff

214. Social Services in Secondary Settings. I. 3 hr. PR: S.W. 212. The history, philosophy and structure of American programs in the fields of mental health, medical care, the schools and corrections. Staff

215. The Profession of Social Work. II. 3 hr. PR: S.W. 212 and one other of the above courses. Social work as a professional service; its place in society; its purpose, underlying values, knowledge, and methods. Staff

Courses of Instruction: M.S.W.

301. Casework I. I. 3 hr. Emphasis is placed on understanding the problems involved in asking for, using and relinquishing help; on interviewing and recording; and on securing familiarity with services, policies and procedures of typical social agencies. Discussion is based on case records and readings in professional literature. Mrs. Ellison

302. Casework II. II. 3 hr. Continuation of S.W. 301. Application of generic casework principles and concepts, drawing upon the student's field work experience and additional case materials from various settings. Staff

303. Social Casework III. II. 3 hr. Analysis of case situations of increasing complexity involving deviate and normal behavior. Case materials drawn from medical, psychiatric, authoritative, child welfare and family service settings are used to develop the relationship of theory to practice in varied settings and the relationship of the caseworker to other disciplines. Staff

305. Introduction to Social Group Work. II. 2 hr. Principles and methods used by social workers to help individuals use group relationships for individual growth and improved social functioning. Mr. Sacks

306. Social Welfare Policy and Services I. I. 2 hr. Study and analysis of public and private programs in selected fields of social work practice in the United States, generally, and West Virginia and its geographical area, more specifically. The philosophy and history of social service, including European traditions and models. The administrative structure and patterns of financing of social welfare services. Current problems and issues. Mr. Fulton

307. Social Welfare Policy and Services II. II. 2 hr. Continuation of S.W. 306. Covering other major fields of social work practice. Staff

308. Social Welfare Policy and Services III. II. 3 hr. A further analysis and evaluation of social services. Students will be encouraged to work on individual or group projects related to current issues in the field. Staff

311, 312. Field Instruction. I, II, S. 5 hr. each. Field instruction and practice in selected agencies under general direction of the faculty and under direct supervision of an agency supervisor or faculty member Miss Mudd and Staff

314. Field Instruction. I, II. 1-4 hr. Field instruction and practice in a selected agency, under general direction of the faculty. Supplements S.W. 311 and 312. Miss Mudd and Staff

317. Group Process and Social Organization. II. 2 hr. Selected sociocultural concepts as related to social work practice. Consideration of role theory; small group theory; the family, social stratification; and social organization. Mr. Schneider

320. Growth and Behavior I. I. 4 hr. Man as a psychosocial, biological entity. Normal physical, psychological and social development. Theories of personality structure and dynamics. The mechanisms for maintaining social functioning under stress. Mr. Scher and Mr. Harvey

322. Growth and Behavior II. II. 3 hr. Further study of the process of personality growth. Application of psychodynamic principles to the study of emotional and mental illness. Consideration of the major organic and functional disorders. Mr. Harvey and Lecturers

323. Growth and Behavior III. II. 3 hr. An advanced course in the biological, psychological and social determinants of human behavior with emphasis on social functioning as the measure of adjustment. Mr. Scher and Mr. Harvey

331, 332. Advanced Field Instruction. I. 5 hr. ea. Continuation of S.W. 311 and 312, usually in a different setting. Miss Mudd and Staff

334. Advanced Field Instruction. I, II, S. 1-4 hr. Continuation of S.W. 311 and 312. Designed to supplement S.W. 331 and 332. Miss Mudd and Staff

340. The Scientific Foundation of Social Work. I. 3 hr. Introduction to research and the scientific method. The scientific approach to social welfare problems. Elements of research method. Mr. Schneider

341. Problem Report. S, I, II. 1-2 hr. per sem. or term. Total required: 3 hr. Substantial exploration of a professionally significant problem. Staff

360, 361, 362. Seminar. II. 3 hr. Intensive study in student's area of special interest. Individual conferences with staff; guided reading program; preparation of an individual written report. Seminar meetings for all students supplement individual study. Staff

Courses of Instruction: Employed Workers Only

230. Public Welfare. 3 hr. An introduction to the history, philosophy and structure of public welfare, including public assistance and programs for the aged, survivors and disability insurance; historical development, administrative structures, perspectives. Staff

240. Child Welfare. 3 hr. The physical, social and psychological needs of children; services provided by public and private agencies to parents and to children who need protection, assistance, foster care, adoption, or services in their own homes; historical background. Staff

250. Introduction to Social Casework I. 3 hr. The psychology of client and caseworker and the general character of casework help. Lecture, discussion and analysis of selected case materials. Staff

251. Introduction to Social Casework II. 3 hr. PR: S.W. 250 or equiv. Further study in the general character of casework help. Case analysis, lectures and class diseussion of casework method. Staff

260. Introduction to Growth and Behavior I. 3 hr. Study of man as a psychosocial, biological entity. Structure and dynamics of personality development. Models of personality. Staff

261. Introduction to Growth and Behavior II. 3 hr. PR: S.W. 260 or equiv. Further study in the dynamics of personality growth and behavior. Special consideration of deviant development and behavior. Staff

370. Supervision. 3 hr. For supervisors in social casework practice. The course is concerned with methods in the teaching of casework skills to beginning or less experienced workers through the supervisory relationship. Staff

375. Individual Consultation. 1-3 hr. per sem. or term. For graduate social workers, including supervisors, who wish to increase their skills through individual consultation with a member of the social work staff. Programs will be designed to meet individual needs and normally will involve guided reading, case discussions and regular office conferences. Staff

SOCIOLOGY

Professors Gibbard and Miller; Associate Professor Kerr; Assistant Professors Silberstein, Weller, and Zawacki; Instructor Rice.

The study of sociology should help the student increase his understanding of the society in which he lives. An undergraduate major in sociology provides basic preparation for teaching social sciences in high school and for professional careers in social work and other fields involving interpersonal relations. The study of sociology should be an aid in citizenship and intelligent participation in modern life.

A major in sociology consists of 18 to 24 hours of upper-division courses including as a rule Sociol. 202, *Introduction to Social Research;* either Sociol. 243, *Introduction to Anthropology* or Sociol. 248, *Primitive Society*, and Sociol. 246, *Types of Sociological Theory.*

A student planning to major in sociology should take Sociol. 1 in either his freshman or sophomore year, and Sociol. 104 in his sophomore year.

Students who first enroll in the University in September, 1964 or later must fulfill the requirements of the Core Curriculum. The following program is offered to other students planning their program, but need not be followed exactly.

FIRST YEAR				SECOND YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3	Sociol. 1	3	Sociol. 104	3
Foreign language	3	Foreign language	3	Foreign language	3	Foreign language	3
Laboratory Sci.	4	Laboratory Sci.	4	Speech 11 (either Sem.)	0-3	Speech 11 (either Sem.)	0-3
Electives		Electives		Psych. 1 (either Sem.)* or		Psych. 1 (either Sem.)* or	
Group 1	3-4	Group 1	3-4	Psych. 3	0-3-4	Psych. 3	0-3-4
Mil. or Air Sci. 1	1	Mil. or Air Sci. 2	2	Econ. 1 or		Econ. 2 or	
		Phys. Ed.	1	Pol. Sci. 1	3	Pol. Sci. 2	3
				Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
				Phys. Ed. (W)	1	Phys. Ed. (W)	1
				Electives	0-4	Electives	0-4
	14-17		14-17		17-18		17-18

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Elective Group 3 (if not fulfilled)	3	Elective Group 3 (if not fulfilled)	3	Sociol. 202	3	Sociol. 246	3
Sociology electives	6	Sociol. 243	3	Sociology elective	3	Sociology elective	3
Minor subject elective	3	Sociology electives	6	Minor subject elective	3	Minor subject elective	3
Electives	5-6	Minor subject elective	3	Electives	8-9	Electives	8-9
		Electives	2-6				
	17-18		17-18		17-18		17-18

*If Psychology is not elected to fulfill the laboratory science requirement. Otherwise, courses which satisfy Group 3 requirements are recommended in place of psychology. If not met in the sophomore year, the Group 3 requirement may be satisfied in the junior year.

Courses of Instruction

Lower Division

1. Introduction to Sociology. I, II. 3 hr. Basic concepts; fundamental institutions and functions of society. Staff

Upper Division

Prerequisites for Sociology courses in the "200" series: Sociol. 1 or 102, or Social Sci. 1, 2 (or equivalents).

102. Principles of Sociology. I, II. 3 hr. Analysis of nature and operation of our society; formulation of sociological principles. (A first course mainly for upper-division students. Not for credit for students with credit for Sociol. 1.) Staff

104. Social Problems. I, II. 3 hr. Examination, within a sociological framework, of such topics as labor-management relations, social class conflict, family disorganization and parent-child relations, race relations, juvenile delinquency and crime, religious adjustment, and social planning. Mr. Weller

160. Family Living. I, II. 3 hr. A course without prerequisites, for students in all divisions of the University, to help them attain knowledge, values, and skills with respect to dating, courtship, mate selection, engagement, marriage, parenthood, and family life. Mr. Kerr

202. Introduction to Social Research. I. 3 hr. Trends in social research; examination of methods and techniques. Mr. Gibbard

205. Urban Sociology. II. 3 hr. Sociological analysis of institutional structure, social values, and individual goals in urban-industrial society; bureaucratization, collectivization, and mass culture; emphasis on political, economic, religious, and family institutions. Mr. Weller

208. The Community. S. 3 hr. An analytical course intended chiefly to provide background data for students interested in programs of community action. Topics to be included are: the basic characteristics of communities; community institutions and resources; social cleavages within the community; and community survey and community planning. Mr. Gibbard

210. Marriage and the Family. I, II. 3 hr. Sociological analysis of the contemporary family and its problems. Mr. Kerr

211. Sociology of Childhood. II. 3 hr. Adjustment of child to American culture. Mr. Kerr

220. Social Change. I. 3 hr. Sociological analysis of the major changes now going on in our society, of the forces underlying them, and of the tensions to which they give rise. Alternative future directions; rational manipulation and planning for social change. Mr. Weller

224. Social Stratification. I. 3 hr. Description and analysis of various types of stratification systems, such as class and caste; social mobility, and status-striving. The course emphasizes the place of status, prestige, and power in the structure of American society. Mr. Silberstein

229. Population and Migration. I. 3 hr. Population theories; growth, composition, and distribution of American population; immigration and culture pluralism; internal migrations and their consequences. Mr. Gibbard

231. Race Relations. I. 3 hr. Race relations in the U.S. with emphasis on the American Negro. Mr. Gibbard

233. Criminology. I, II. 3 hr. Explanation of crime; critical study of criminal justice, penal methods, and reform movements. Mr. Weller

234. Juvenile Delinquency. S. 3 hr. A scientific study of the nature, extent, and causes of delinquency in the United States. Methods of treatment, correction, and prevention, with emphasis on the work of the juvenile courts. Mr. Weller

235. Collective Behavior. I. 3 hr. Analysis of new group formation and behavior following social dislocation, social unrest, crowd behavior, and other forms of social contagion; the public and public opinion; social movements. Mr. Silberstein

243. Introduction to Anthropology. II. 3 hr. Biological history of man, analytical study of social organization, culture, and intellectual life of primitive man. Mrs. Rice

244. Culture and Personality. II. 3 hr. Significant interrelations between the individual and his culture. Mr. Silberstein

246. Types of Sociological Theory. II. 3 hr. Examination of leading schools of sociological thought in our day. Mr. Zawacki

248. Primitive Society. II. 3 hr. Description and analysis of several relatively simple societies; their family life, kinship systems, politics, economics, and religious practices. Mrs. Rice

250. Human Relations in Industry. II. 3 hr. The sociology of industrial relations. The factory or business firm as a social system. Formal and informal relations within the plant. Mr. Gibbard

260. Complex Organizations. II. 3 hr. A sociological analysis of large-scale organizations emphasizing their structure and functions. The course will examine the place in contemporary society of such organizations as the military, prisons, and hospitals. Mr. Zawacki

265. The Sociology of Latin America. II. 3 hr. A systematic sociological consideration of the problem of "underdeveloped" countries, with special emphasis on the culture, social structure, and national character of Latin American countries. The main focus will be on social change. Mr. Silberstein

270. Group Dynamics. (Same as Psych. 270). I. 3 hr. An interdepartmental course, combining psychological and sociological approaches, in which the dynamics of groups in operation are considered. Mr. Rankin and Mr. Silberstein

Graduate Division

Prerequisite for all courses in the "300" series: Consent of department chairman.

371, 372. Thesis. I, II. 1-6 hr. Staff

391. General Seminar. I, II. 3 hr. Staff

392. General Seminar. I, II. 3 hr. Staff

393. Seminar in Sociological Research. I, II. 3 hr. Staff

394. Seminar in Sociological Research. I, II. 3 hr. Staff

395. Seminar in Sociological Theory. I, II. 3 hr. Staff

396. Seminar in Sociological Theory. I, II. 3 hr. Staff

SPEECH

Professors Henning, Boyd, Burrows, Mullendore, Wasson, and Welden; Associate Professor Davis; Assistant Professor Ford; Instructors Barnett, Cortes, Gwin, Hall, Hardin, Lueders, Neel, Reed, Rockenstein, and Thomas.

The curriculum of the Department of Speech is so organized that a student may receive basic training in the cultural and practical aspects of any one or more of six fields of speech: (1) interpretation; (2) public address; (3) radio; (4) speech correction and audiology; (5) teaching; and (6) theatre. In all courses of training in speech skills, professional standards of achievement are emphasized.

Major Requirements. The minimum number of hours in speech courses for a major is 36, including the following required courses: Speech 31, 32, 33, 34, 121, 140, 165, and 250. The 12 hours of electives taken in addition to these required courses must all be upper division. A total of 40 semester hours in speech may be counted toward graduation. Included in the major requirements is passage of the platform test.

Platform Test. After a speech major has completed, or is completing, the basic courses (Speech 31, 32, 33, and 34), he or she shall demonstrate proficiency in a 15-minute platform test at a time and place designated by the chairman of the department. Passage of this test shall be prerequisite to continued registration as a speech major. Two tests shall be the maximum allowed any student. Students who have achieved a B grade or better in three of their basic skills courses and, who at mid-term, have a grade of B or better in their fourth course, are exempted from the Platform Test. This does not apply to transfer students.

Forensic Activities. Intramural and intercollegiate forensics, including debate, oratory, and extemporaneous speaking, receive due attention. Speech tournaments, trips, and tours, as well as campus contests, are included in the program. Participation in the activities may lead to membership in Delta Sigma Rho, honorary forensic fraternity.

Theatrical Performances. The University Theater, in conjunction with classes in dramatics, presents a regular program of plays which afford ample opportunity for student participation. In addition, other public and semi-public performances are scheduled to provide experience for less advanced students. Membership in Alpha Psi Omega may be earned by superior work in connection with various productions.

Radio Programs. The University Radio Theater produces, through the facilities of its professionally equipped and outfitted studios, five-minute to half-hour shows for broadcasting. Many programs are recorded and are distributed to State stations.

Off-Campus Speech Services. The Department sponsors and furnishes student programs in the form of short plays, speeches, interpretative readings, and debates for off-campus performances before women's and civic clubs, community organizations, and church groups throughout the State.

Speech and Hearing Problems. Under the direction of a speech and hearing specialist, the Department maintains a clinic for diagnosis and treatment of speech and hearing deficiencies. All University students with speech and hearing handicaps may avail themselves of the services of the clinic without additional cost.

Suggested Distribution of Courses for A.B. Degree in Speech

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Science*	4	Science*	4
Foreign language	3	Foreign language	3
Speech 31	3	Speech 32	3
Mil. or Air Sci.	2	Mil. or Air Sci.	2
Phys. Ed.	1	Phys. Ed.	1
Electives**	2	Electives**	2
	16-18		16-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Mil. or Air Sci.	2	Mil. or Air Sci.	2
Speech 33	3	Speech 34	3
History 52***	3	History 53***	3
Pol. Sci.†	3	Pol. Sci.†	3
English 5	3	English 6	3
	16-17		16-17

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Speech 165	2	Speech 121	3
Speech 166	1	Sociology 102	3
Speech 140	3	Electives‡	10
Speech 250	3		
Electives‡	7		
	16		16

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Speech Elec.	6	Speech Elec.	6
Electives	10	Electives	10
	16		16

*Students working toward teacher certification should take either Biol. 1 and 2 or Physical Science 1 and 2.

**Students working toward teacher certification should schedule Art 30.

***Students working toward teacher certification should substitute Hist. 1 and 2.

†Students working toward teacher certification should substitute Social Sci. 1 and 2.

‡Students working toward teacher certification should schedule English 18, Music 10, Educ. 105, 106, 109, and Health Educ. 102.

Teacher Training. For students working toward certification in Speech, attention is called to the footnoted items in the above distribution of courses. Also, in the selection of their speech electives, such students should be certain to elect Speech 120, Speech 161, and Speech 162, all of which are required for certification in the field of Speech. A minimum of 36 hours in the field is needed for certification.

Suggested Distribution of Courses for Bachelor of Science Degree in Speech Correction

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Lab. Science*	4	Lab. Science*	4
Foreign language	3	Foreign language	3
Psychology 1	3	Speech 32	3
Speech 31	3	Sociology 1	3
Mil. or Air Sci.	2	Mil. or Air Sci.	2
Phys. Ed.	1	Phys. Ed.	1
	17-19		17-19

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Foreign language	3	Foreign language	3
Speech 33	3	Speech 34	3
History**	3	History**	3
English 3 or 5	3	English 4 or 6	3
Elective (or Music 10***)	2	Elective (or English 18***)	3
Mil. or Air Sci.	2	Mil. or Air Sci.	2
Phys. Ed. (W)	1	Phys. Ed. (W)	1
Elective (or Art 30***)	2	Speech 50	3
	17-18		19-20

THIRD YEAR				FOURTH YEAR			
First Sem.	*Hr.*	*Second Sem.*	*Hr.*	*First Sem.*	*Hr.*	*Second Sem.*	*Hr.*
Speech 150	3	Speech 253	3	Speech 252 or 255	3	Speech 272	3
Speech 254	3	Speech 258	2	Speech 277	2	Speech 271 or 273	3
Speech 256	4	Speech 259	3	Psychology	3	Speech 278	2
Speech 257	2	Speech 270	3	Pol. or Soc. Sci.	3-4	Psychology 236	3
Speech 268	2	Psychology	3	Elective (or Educ. 127***)	2	Pol. or Soc. Sci	3-4
Elective (or Educ. 105***)	3	Elective (or Educ. 106***)	3	Elective (or Educ. 120***)	4	Elective (or Educ. 127***)	2
Educ. 100***	1	Health Ed. 102***	2				
	18		19		17-18		16-17

*Students working for State Certification should take Biology 1 and 2.
**Students working for State Certification should take History 1 and 2.
***To be taken only by students working for State Certification.

Students working for a *Bachelor of Science Degree in Audiology* will follow the above program except that in the fourth year they will select Speech 255 the first semester and Speech 271 the second semester.

Courses of Instruction

Lower Division

3. Voice and Diction. I, II. 3 hr. Four class meetings per week, two lectures, two programmed-laboratories. Theoretical basis for attitudes and standards of proper speech, general problems of voice and diction, including individual analyses. Students are acquainted with special problems in the voice sciences and arts of breath control, tone production, resonance, and connected discourse. Emphasis is placed upon the desirability of a strong, flexible, resonant voice for clarity of communication. The phonetic approach to speech is used to analyze and to remedy diction problems. Voices are regularly tape-recorded, with corrective exercises provided through a programmed-laboratory method. Open to all students. Staff

6. Acting. I, II. 3 hr. Drills for developing muscular control; for overcoming inhibitions; for rendering the body expressive of thought and emotion. Coordination of mind and body. Open to all students. Mr. Boyd and Mr. Neel

10. Communication in A Democratic Society. I, II. 3 hr. The nature, psychology, process and effects of communication in its various forms in our society. Open to all students. Mr. Welden and Staff

11. Principles of Oral Communication. I, II. 3 hr. PR: English 1 and 2. The lecture-laboratory concept. The course is taught in keeping with both the group and individual communication approach. The subject matter of group communication will include conference speaking, techniques of interviewing, group dynamics, problem-solving, and decision making. The subject matter of individual communication will cover various aspects of interpersonal communicative situations such as informative, persuasive, and special-occasion problems as well as listening techniques. Staff

29. Oral Interpretation. I, II. 3 hr. Development of mental and emotional responsiveness to written material. Techniques of communicating such material to others through oral reading. Open to all students. Mrs. Hardin and Mr. Neel

31. Basic Speech Skills. I. 3 hr. Required of and limited to Speech Majors. The phonetic approach to language. Improvement of clarity, audibility,

variety, and quality of voice and correct use of language. Emphasis upon development of vocal skills in accurate communication of ideas and feelings. Mrs. Hardin and Mrs. Cortes

32. Basic Speech Skills. II. 3 hr. Required of and limited to Speech Majors. The use of the body in oral communication. Integration of bodily action with voice and language for effective communication of ideas and feelings. Mr. Neel and Mr. Boyd

33. Basic Speech Skills. I. 3 hr. Required of and limited to Speech Majors. Practical application of skills developed in Speech 31 and Speech 32 to the oral interpretation of literature. Emphasis upon development of imagination and feeling, appreciation for good literature, and skill in communicating these to an audience. Mr. Neel and Mrs. Hardin

34. Basic Speech Skills. I. 3 hr. Required of and limited to Speech Majors. Study of and practice in extemporaneous speaking. Integration of the spoken word, voice, and action for accurate communication of ideas and feelings. Stress upon selection, organization, and presentation of material in good oral language. Mr. Davis and Mr. Welden

38. Great Issues and Speakers. II. 3 hr. An investigation of the nature and influence of oral communication as it has grown out of such issues as states rights, the public school movement, the labor movement, censorship, free enterprise, and war and peace. Mr. Davis and Staff

50. Speech Correction. II. 3 hr. Introductory course for those majoring in or interested in majoring in speech correction or audiology. Fundamentals of evaluation and therapeutic techniques of various oral communication disorders. Mrs. Thomas

60. Junior Varsity Debate. I. 1-2 hr. (Not more than 1 credit hour each of two semesters). Intercollegiate debate training and participation preparatory to varsity team debating. Open to freshmen and sophomores. Mr. Bennett

75. Parliamentary Procedure. I, II. 1 hr. Study of and practice in establishing rules of order and methods of conducting meetings, assemblies, societies, etc. Mr. Welden

INTERPRETATION

Upper Division

104. Advanced Oral Interpretation. I. 3 hr. PR: Speech 29. Content and form of various types of literature and advanced techniques for their oral presentation. Mr. Neel

105. Basic Problems in Interpretation. II. 3 hr. PR: Speech 29. Designed to deal with individual problems of students in interpretation. Mr. Neel

200. Art of Storytelling. S. 3 hr. PR: Consent. Principles involved in effective presentation of stories, with practical experience in classroom and before audiences. Stories of all types for adults and children studied. Mr. Welden

203. Professional Reading. I, II. 3 hr. PR: Speech 104 and consent. Intensive training in interpretation. Designed to meet needs of individual. Full length public recital prepared and presented. Limited enrollment. Staff

205. Advanced Problems in Interpretation. II. 3 hr. PR: Speech 29 and consent. Designed to deal with individual problems of advanced students in interpretation. Mr. Neel

PUBLIC SPEAKING

Upper Division

120. Group Discussion. I, II. 3 hr. PR: Speech 11. Theory and practice of various forms of group discussion. Principles, methods, and types of group discussions; application of contemporary problems. Mr. Welden

121. Argumentation and Debate. I, II. 3 hr. PR: Speech 11. Principles of argumentation, evidence, and reasoning, application to debating. Mr. Welden

123. Advanced Argumentation and Debate. I. 2-4 hr. (Not more than 2 credit hours each of two semesters). PR: Speech 121. Primarily for varsity debaters and law students. Mr. Barnett

125. Advanced Public Speaking. I. 3 hr. PR: Speech 11. Techniques in composition and delivery of public speeches. Attention to parliamentary procedure. Mr. Davis

126. Speech for Business and Industry. I or II. 3 hr. Designed particularly to meet the needs of business executives, supervisors, foremen, public relations personnel, salesmen, etc. Study of and performance in public speaking, conference methods, making reports, committee work, management leadership, group controls, and personnel relationships. Mr. Davis

220. Speech Composition. II. 3 hr. PR: Speech 11 and consent. Materials of speech, organization, and style; application to delivery. Mr. Henning

221. Persuasion. I. 3 hr. PR: Speech 11 and consent. Study and practice in identification of factors motivating human behavior and belief, how to secure and hold attention, the uses of suggestion, the dramatization of ideas. Application to advertising and writing as well as speaking. Adapted to needs of pre-law, commerce, and journalism students. Mr. Henning

222. Forms of Public Address. II. 3 hr. PR: Consent. Composition and delivery of the oration, political speech, speech of introduction, dedicatory address, and eulogistic speech. Mr. Welden

223. Advanced Group Discussion. II. 3 hr. PR: Consent. Application of the principles and practices of group discussion to classroom teaching, the conference tables, committee work, policy-determining groups, and the public forum. Opportunities for participation by members of the class using current national and international problems. Mr. Welden

225. Interscholastic Forensics. S. 3 hr. PR: Consent. Interscholastic public-speaking activities with emphasis upon types commonly termed original speech, such as debate, oratory, and extemporaneous speaking. Opportunity for performance in each type will be provided. Mr. Henning and Mr. Welden

Graduate Division

330. History of Rhetoric. I. 3 hr. PR: Consent. Critical study of rhetoric from classical times to the present. Mr. Henning

335. History of American Public Address. II. 3 hr. PR: Consent. Critical study of leading American speakers, their biographies, speeches, and issues with which they dealt. Mr. Welden

339. Seminar: Problems in Speech. I, II. 3 hr. Mr. Henning

RADIO AND TELEVISION

Upper Division

140. Introduction to Broadcasting. I and II. 3 hr. Survey of the industry. The development of broadcasting, its responsibilities, and job opportunities. Organization of stations and their relation to networks. Federal regulations and industry codes. Technical aspects of radio and television. Brief consideration of programming and production techniques. Mr. Burrows

141. Radio and Television Announcing. I and II. 3 hr. Procedures and routines of announcing in both media. Staff assignments, regulations, logged broadcasting operations, reports, and emergency procedures. Practice in reading of news and commercial copy. Mr. Rockenstein

143. Fundamentals of Radio Production. II. 3 hr. PR: Speech 140 or consent. The operation and care of studio and control-room equipment. Non-technical study of control and transmission of all types of radio programs. Blending of sound, music, and speech in production. Students in this class will participate in the production of University radio programs. Lecture and laboratory. Mr. Rockenstein

144. Radio and Television Continuity Writing. I. 3 hr. Format of all types of radio and television writing except dramatic scripts. Continuity for music programs, talks, interviews, round-table discussions, forums, and variety shows. Mr. Rockenstein

145. Fundamentals of Television Production. II. 3 hr. PR: Speech 140 or consent. Elementary treatment of technical aspects. Station organization and personnel. Theory of camera operation and picture composition. Techniques of television directing and staging. Field trips to educational and commercial stations for observation. Students in this class will participate in the production of University television programs. Lecture and laboratory. Mr. Burrows

240. Radio and Television Dramatic Writing. II. 3 hr. PR: Speech 140 and 144, or consent. Dramatic script, documentaries, poetry programs, serial dramas, and children's shows for commercial and educational purposes. Scripts are written to be aimed at definite markets. Mr. Rockenstein

242. Radio Workshop. I. 3 hr. PR: Consent. Discussion of techniques of radio production. Laboratory experience in the production of University radio programs. Adapted to students interested in commercial and educational broadcasting. Mr. Rockenstein

243. Television Workshop. I. 3 hr. PR: Consent. Discussion of techniques of television production. Laboratory experience in the production of University television programs. Adapted to students interested in commercial and educational broadcasting. Mr. Burrows

244. Radio and Television Program Planning. II. 3 hr. PR: Speech 140 and consent. Analysis of the purpose and basic idea of a program in relation to audience composition. Requirements of effective structure. Practice in laying out program formats for all types of radio and television programming. Mr. Burrows

Graduate Division

348. Seminar: Problems in Radio. II. 3 hr. PR: Consent. Mr. Rockenstein

349. Seminar: Problems in Television. I, II. 3 hr. PR: Consent. Mr. Burrows

NOTE: For additional courses of training for television, refer to Speech 6, Speech 162, Speech 260, Speech 261, Speech 263, Speech 264, and Speech 267.

SPEECH CORRECTION AND AUDIOLOGY

Upper Division

150. Articulation and Voice Disorders. I. 3 hr. PR: Speech 50 or 250. A detailed consideration of articulation and voice disorders including speech and language retardation and esophageal speech from an etiological, diagnostic, and therapeutic point of view. Diagnostic and therapeutic contency with these disorders will be developed. Mrs. Thomas

152. Basic Speech and Hearing Science. I. 3 hr. Consideration of the application of certain principles of the physical and social sciences to an understanding of the process of human oral communication. Mr. Mullendore

153. Applied Phonetics. I. 3 hr. A study of the standard speech sounds in our language. Use of symbols for recording speech sounds; application of the use of such symbols in representing various usages of speech; special emphasis on analyzing and recording defective speech. Dynamic concepts studied. Mr. Wasson

154. Anatomy of the Speech and Hearing Mechanism. II. 3 hr. Anatomical and physiological study of the vocal mechanisms and the ear. Mr. Mullendore

156. Articulation and Voice Disorders. I. 3 hr. PR: Speech 50. A detailed consideration of articulation and voice disorders including speech and language retardation and esophageal speech from an etiological, diagnostic, and therapeutic point of view. Diagnostic and therapeutic procedures with these disorders will be developed. Mrs. Thomas

157. Hearing Problems. II. 3 hr. PR: Speech 50 or consent. General orientation to the field of audiology and the specialties which are included. A survey of the problems of the hearing-handicapped, basic hearing instruments, measurement procedures, and general goals of hearing therapy. Mr. Wasson

158. Bases of Aural Rehabilitation for Children and Adults. I. 3 hr. PR: Speech 157. Study of the perceptive and behavioral problems of aurally handicapped individuals in society, and approaches to methods of alleviating and compensating for hearing loss. Mr. Wasson

250. Survey of Oral Communication Disorders. I. 3 hr. PR: Consent. A survey of basic concepts and principles of the disorders of speech and their treatment. Primary attention is given to the more common speech deviations. Students observe examination and corrective methods of therapists in the clinic and schools. Normal speech and hearing development of children is considered. This is an orientation course for students majoring in speech as well as teachers, school administrators, psychologists, and rehabilitation workers. Staff

251. Advanced Speech Correction. II. 3 hr. PR: Speech 156. Study of the speech-retarded child and organically based speech disorders including cleft palate, cerebral palsy, esophageal speech and phonation. Mrs. Thomas

252. Stuttering. I. 3 hr. PR: Speech 156. Theories and therapies of stuttering. Mrs. Thomas

253. Profound Organic Speech Disorders. II. 3 hr. PR: Speech 251 or consent. Speech and language disorders related to cerebral injury. Emphasis on aphasia and aphasia therapeutics. Differential diagnosis of children with delayed speech and language. Mr. Mullendore

271. Diagnostic Audiometrics. I. 3 hr. PR: Speech 157 and consent. A study of the various audiometric tests outlining the dimensions of hearing. Test administration and interpretation. Mr. Wasson

272. Hard of Hearing Therapy. II. 3 hr. PR: Speech 158 or consent. Bases and procedures of acoustic training and speech reading. Mr. Wasson

275. Speech Problems of Children. II. 3 hr. PR: Consent. Normal development of speech habits in children. Diagnostic and remedial procedures for speech defects. Relationship between speech and allied activities such as reading, spelling, and disciplinary problems. Mr. Henning

276. Procedures and Methods in Clinical Speech and Hearing. I. 3 hr. PR: Speech 156, 157. Principles and methods of diagnosis and appraisal of disorders of communication. Methods of organization and administration of clinical speech and hearing programs in schools, hospitals, community clinics, and state and national services. Mr. Mullendore

*277. Clinical Practice in Speech. I, II. 1-6 hr. PR: Consent. Supervised diagnosis and therapy of speech disorders. (May be taken for a maximum of 3 semester hours per semester of undergraduate or graduate credit). Staff

*278. Clinical Practice in Hearing. I, II. 1-6 hr. PR: Consent. Supervised diagnosis and therapy of hearing disorders. (May be taken for a maximum of 3 semester hours per semester of undergraduate or graduate credit). Mr. Wasson

Graduate Division

350. Experimental Phonetics. II. 3 hr. PR: Speech 153 and consent. Investigation of problems of phonetics as they are related to functional speech. Instruments used in sound analysis and an investigation of various aspects of architectural acoustics. Mr. Mullendore

351. Problems in Speech Pathology. I. 3 hr. PR: Consent. The speech pathologist as a diagnostician and therapist in interdisciplinary investigations. Examination of counseling procedures, administrative practices in varied settings, and organization of programs for various pathologies of speech. Staff

352. Advanced Speech Pathology. II. 3 hr. PR: Speech 251 and consent. Theories of causation and therapies for delayed language development, cleft palate, and cerebral palsy. Mr. Mullendore

353. Neuropathologies of Speech and Language. I. 3 hr. PR: Speech 154, 253, or consent. Speech and language disturbances related to brain injury or maldevelopment. Consideration of the neurological bases, pathologies and psychological factors involved in the loss or lack of development of speech and language. Mr. Mullendore

357. Seminar: Problems in Audiology. I. 3 hr. PR: Speech 158, 271. Topics vary from term to term to meet student needs. Emphasis will be on advanced concepts in audiological diagnosis, aural rehabilitation and noise in industry. Mr. Wasson

358. Acoustic Instrumentation. II. 3 hr. PR: Speech 158, 271. Principles of electronic design utilized in clinical auditory testing and amplification. Evaluation and assessment of hearing aids in aural rehabilitation. Mr. Wasson

359. Seminar: Speech Pathology. I. 3 hr. PR: Consent. Mr. Mullendore

THEATER

Upper Division

160. Theatrical Make-Up. I. 2 hr. Lecture-laboratory course in art of stage make-up. Practical experience provided by doing make-up for University Players productions. Mr. Ford

*Speech 277 and 278 meet the requirements of Educ. 128, which is necessary for certification.

161. Stagecraft. I, II. 3 hr. Lecture-laboratory course in elementary problems of scenery construction, scene painting, and stage lighting. Practical experience provided on University Players productions. Mr. Reed

162. Play Directing. I. 3 hr. PR: Speech 165. Fundamentals of directing stage and television plays. Emphasis on work of director in relation to actor, stage, business, composition, movement, and rehearsal schedule. Mr. Boyd and Mr. Neel

164. Theater Workshop. I, II. 1-6 hr. (No more than 3 hours each of two semesters). Laboratory for production of University plays and informal stimulation of interest in creative arts. Open to all students. Mr. Reed

165. Theatrical Methods and Practices. I, II. 2 hr. Basic techniques and terminologies of acting, scene construction, lighting, properties, costuming, directing, and theater history. (Must accompany Speech 166 for credit.) Mr. Ford

166. Theatrical Methods and Practices Laboratory. I, II. 1 hr. Laboratory to accompany Speech 165. Participation in actual production of University Theater and Children's Theater plays. Mr. Reed

260. Advanced Acting. II. 2 hr. PR: Speech 6, 165, and consent. Characterization, script analysis, style, theories, and techniques. Designed to meet needs of individual student. Mr. Boyd

261. Theatrical Dialects. I. 3 hr. PR: Consent. Study and mastery of 12 common dialects used in theater and radio. Mr. Boyd

262. Playwriting. II. 3 hr. PR: Speech 165 and consent. Development of creative ability in dramatic composition. Study of techniques and problems of playwright. Of cultural value, but primarily a writing course. Staff

263. Scene Design. II. 3 hr. PR: Consent. Lecture and laboratory in theories of scene design for stage and television, including actual construction of designs. Open to juniors, seniors, and graduate students. Mr. Ford and Mr. Reed

264. Advanced Play Directing. II. 3 hr. PR: Speech 162, either Speech 161 or 164, and consent. Emphasis on work of directing as an integrating artist. Display of high level of proficiency in direction of a one-act play required of all students enrolled. Mr. Boyd

265. History of Theater. I. 3 hr. PR: Speech 165 and consent. Historical survey of theater from primitive times to present. Includes both oriental and occidental theaters. Mr. Neel

266. Drama Criticism and Aesthetics. I, II. 3 hr. A survey of chief critical and aesthetic theories of drama-ancient, modern and contemporary. Mr. Neel

267. Advanced Scenery and Lighting. I, II. 2 hr. PR: Speech 161 and consent. A more technical study of scenery and lighting problems than is offered in Speech 161. Students are given opportunity for laboratory study through independent investigation and work on University Players productions. Mr. Reed

268. Creative Dramatics. I. 2 hr. PR: Speech 6 or consent. The study and practice of creative dramatic activity as a method of learning and self development for children. Mr. Ford and Mr. Boyd

Graduate Division

368. Seminar Problems in Theatre. I, II. 3 hr. Consent. Mr. Boyd

RELATED COURSES

Upper Division

170. Directed Speech Activities. I, II. 1-3 hr. PR: Consent of chairman of department. Chairman of department may grant credit for any extra-

curricular speech activity or study which is assigned to and directed by a member of the speech staff. Staff

270. Psychology of Speech. II. 3 hr. PR: 6 hr. of psychology and 18 hr. of speech. Psychological principles involved in speech situation. Analysis of roles of emotion, habit, learning judgment, rating, and imagery in speech. Mr. Henning

Graduate Division

301. Research Problems and Methods. I. 3 hr. PR: Graduate standing. Required of all candidates for Master's Degree in Speech. Mr. Davis and Mr. Henning

370. Research. I, II. 1-3 hr. PR: Speech 301, a speech seminar, and consent of chairman of department. For graduate students in speech. Mr. Henning and Staff

375. Independent Study. I, II. 1-3 hr. PR: Speech 301, a speech seminar, and consent of chairman of department. Open to graduate students in speech who are pursuing independent problems in that field. Mr. Henning and Staff

399. Thesis. I, II. 2-4 hr. Mr. Henning and Staff

The College of Commerce

HISTORY

The College of Commerce was established by the Board of Governors of West Virginia University on November 10, 1951, and began its initial year of operation in September, 1952. Prior to this, programs of study and courses leading to the bachelor's and master's degrees in business administration and economics had been offered for many years by the Department of Economics and Business Administration of the College of Arts and Sciences. In September, 1952, the Department of Economics and Business Administration became the College of Commerce.

OBJECTIVES

As a part of the University community, the College of Commerce seeks to provide students with a broad understanding and appreciation of our cultural and intellectual heritage. Furthermore, it offers the opportunity for study in depth in economics and business administration to those who plan to enter upon careers in the business world. Closely related to these objectives is service to the people of the state through consultation and research in many phases of the economic and business life of the state and region.

BUREAU OF BUSINESS RESEARCH

An integral part of the College of Commerce, the Bureau of Business Research undertakes research into business and economic problems—particularly those of West Virginia. This research program is carried out by faculty members and others under the general supervision of the Director of the Bureau of Business Research. Publication of a series of monographs, the *West Virginia Business and Economic Studies,* was begun by the Bureau in 1949.

ACCREDITATION

The College of Commerce is accredited not only through the approval of West Virginia University by national and regional accrediting agencies, but also through full membership in the American Association of Collegiate Schools of Business. This association is the only accrediting agency in the field of professional education for business at the collegiate level.

The Master of Business Administration program of the college has the distinction of being one of the first group of graduate programs accredited by the American Association of Collegiate Schools of Business.

UNDERGRADUATE PROGRAMS

The College of Commerce offers programs leading to the degrees of Bachelor of Science in Economics and Bachelor of Science in Business Administration. In business administration, majors are offered in Accounting, Finance, Industrial Management, and Marketing.

Undergraduate work is taken in two divisions: the lower division or Pre-Commerce, in which freshmen and sophomores are enrolled; and the upper division, in which juniors and seniors are enrolled. Since the Pre-Commerce curriculum is designed to afford students a general educational background and provide a foundation for the work that follows, Pre-Commerce students are enrolled in the College of Arts and Sciences.

After completion of 58 semester hours of required and acceptable elective courses with a grade average of not less than "C," the student will be admitted to the College of Commerce. Upon admission each incoming student must select a major concentration area from among the following: Accounting, Economics, Finance, Industrial Management, and Marketing. Although narrowly specialized training is avoided, these concentration areas permit upperclassmen to acquire knowledge in depth in one area that is of particular interest to them.

In order to assure a well-rounded education for students, the University requires the completion of a University Core Curriculum, and the College of Commerce requires the completion of either a Business Core or an Economics Core. Since many students do not follow ultimately the careers for which they prepare while in the University, this background of fundamentals should better enable them, in terms of versatility and adaptability, to meet the changing courses of their careers than does a highly specialized program. Furthermore, it affords a comprehensive educational foundation upon which specialized programs can be built. The various core curricula are described under "Requirements for Degrees."

GRADUATE PROGRAMS

The College of Commerce offers programs leading to the degrees of Master of Business Administration, Master of Science in Business Administration, and Master of Science in Economics. Students in these programs register in the Graduate School. Details about these programs may be found in the *Announcements* of the Graduate School.

Requirements for Degrees

BACHELOR'S DEGREES

To qualify for either the Bachelor of Science in Business Administration or Bachelor of Science in Economics degrees, the student who enters the University after September 1, 1964 must have:

(1) Earned 128 semester hours of credit with a "C" or 2.0 grade-point average on all work attempted at West Virginia University (except that courses in which "D" grades were received in the freshman year year may be repeated once during the sophomore year and the second grade shall replace the first if it is not lower than "D").

(2) Earned 124 semester hours of credit in subjects other than required Physical Education, required Military or Air Science, English 0, and Mathematics 2. A maximum of 6 hours in Advanced Military or Air Science will be allowed toward credit for graduation and is counted as a Non-Commerce elective.

(3) Earned at least 60 hours of credit in upper-division courses (numbered 100 or higher).

(4) Earned at least 30 hours of credit while enrolled in this college and in residence.

(5) Satisfied the requirements of the University Core Curriculum.

(6) Satisfied the course requirements of one of the curricula described on pages 250-252.

(7) Demonstrated proficiency in the use of English, if this is his native language, by earning a grade of "C" or higher in English 2 at West Virginia University or by passing an English Proficiency Examination.

Students who transfer to the College of Commerce after September 1, 1964 must complete one of the five upper-division programs of study described in this bulletin. As of September 1, 1964 the General Business program is discontinued and the programs in Economics, Finance, Industrial Management, and Marketing are revised as indicated for all students entering the College of Commerce after that date.

UNIVERSITY CORE CURRICULUM

All undergraduates entering the University for the first time in September, 1964, or later must complete the University Core Curriculum Requirements in order to graduate. See page 93).

BUSINESS CORE REQUIREMENTS

To provide a well-rounded background in the various phases of business and economics, all candidates for the B.S. in Business Administration degree, regardless of major, must complete the following Business Core:

Accounting 1 and 2—Principles of Accounting
Business Law 111—Legal Environment of Business
Business Law 112—Commercial Law
Economics 1 and 2—Principles of Economics
Economics 111—Money and Banking
Economics 115—Labor Economics
Economics 125—Statistics
Finance 111—Business Finance
Marketing 111—Marketing
Management 111—Manufacturing

ECONOMICS CORE REQUIREMENTS

To provide a well-rounded background, all candidates for the B.S. in Economics degree must complete the following Economics Core:

Accounting 1 and 2—Principles of Accounting
Economics 1 and 2—Principles of Economics
Economics 111—Money and Banking
Economics 125—Statistics
Economics 211—Micro Economic Analysis
Economics 212—Macro Economic Analysis
Economics 222—History of Economic Thought
Economics 241—Public Finance

SECOND BACHELOR'S DEGREE

A student who has earned a Bachelor's Degree in one department or college of West Virginia may become eligible for a second Bachelor's Degree by earning a minimum of 30 semester hours of credit, which shall include all the courses in the Business Core or the Economics Core.

MASTER'S DEGREES

A program of courses will be planned by the candidate with his faculty adviser and is subject to the approval of the adviser. A grade-point average of at least 3.0 (B) is required on all courses taken as a graduate student at the University, including prescribed work completed to remove undergraduate deficiencies. A grade below "C" in any course taken while enrolled as a graduate student in the College of Commerce will result in suspension from the graduate programs of the College.

To qualify for the Master of Business Administration degree, the candidate must complete the following required courses:

Accounting 301—Managerial Control
Economics 301—Managerial Economics
Economics 302—Research and Reports
Management 301—Administrative Practices
Management 313—Production Administration
Marketing 313—Marketing Administration
Finance 313—Financial Administration
Management 323—Administrative Policy

He must also complete 12 semester hours of elective courses selected with the approval of his adviser. Of these electives, no more than 9 hours may be taken outside the College of Commerce. No thesis is required, but writing is emphasized in all courses. During his last semester in residence, the candidate must pass a comprehensive written examination covering material in the required courses. This examination may be repeated only once.

To qualify for the Master of Science degree, the candidate must complete 30 semester hours of graduate work, including an acceptable thesis. No more than 6 semester hours of work may be taken outside the College of Commerce. Candidates for the M.S. degree with a major in Economics should take the following courses if they have not already completed them:

Economics 211—Micro Economic Analysis
Economics 212—Macro Economic Analysis
Economics 220—Introduction to Quantitative Analysis
Economics 222—History of Economic Thought
Economics 241—Public Finance
Economics 302—Research and Reports
Economics 319—Seminar in Economics

Candidates for the M.S. degree with a major in Business Administration should take at least 9 hours of 300 level courses in addition to thesis credits. If they have not already completed them, they should include the following courses in their graduate programs:

Economics 211—Micro Economic Analysis *or*
Economics 301—Managerial Economics
Economics 220—Introduction to Quantitative Analysis
Economics 302—Research and Reports
Management 225—Business Policy *or*
Management 323—Administrative Policy

Programs of Study

PRE-COMMERCE PROGRAM

Pre-Commerce students are expected to complete the Pre-Commerce program of study within their first two years of residence at the University. It is particularly important that Economics 1 and 2 be completed during the sophomore year since these courses are prerequisite for all upper-division courses in the College of Commerce.

Students must observe the University Core Curriculum Requirements as to distribution of elective courses. During the four years, in addition to the required courses listed herein, the student must complete 12 hours of Group A electives, 6 hours of Group B electives, and 9 hours of Group C electives from the list of approved elective courses. These may be lower-division or upper-division courses, the only requirement being that the student must earn at least 60 hours of credit in upper-division courses (numbered 100 or higher).

FRESHMAN YEAR

Courses	*Hr.*
English 1 and 2—Composition	6
Mathematics 3—College Algebra	3
Pol. Sci. 2—Amer. Federal System	3
Psychology 1—Intro. to Psych.	3
Sociology 1—Intro. to Sociol.	3
Mil. or Air. Sci. 1 and 2[1]	4
Phys. Educ.—General Program[1]	2
Electives	10
TOTAL	30-34

SOPHOMORE YEAR

Courses	*Hr.*
Accounting 1 and 2—Principles	6
Economics 1 and 2—Principles	6
English 18—Adv. Composition	3
Speech 11—Public Speaking	3
Mil. or Air Sci. 3 and 4[1]	4
Phys. Educ.—Women's Program[1]	2
Electives	12
TOTAL	32-34

[1]A minimum of 124 hours of credit must be earned in subjects other than required Physical Education, required Military or Air Science, English 0, and Mathematics 2.

B.S. IN BUSINESS ADMINISTRATION PROGRAMS

Accounting

The accounting program is designed to prepare students for public accounting and for positions as accountants in business, industry, and government.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Acctg. 111 and 112—Intermediate Accounting	6	Acctg. 113—Advanced Acctg.	3
Acctg. 115—Cost Accounting	3	Acctg. 217—Auditing Theory	3
Bus. Law 111—Legal Environment	3	Econ. 111—Money and Banking	3
Bus. Law 112—Commercial Law	3	Econ. 115—Labor Economics	3
Econ. 125—Statistics	3	Mrkt. 111—Marketing	3
English 123—Business English	3	Electives—Commerce	9
Finance 111—Business Finance	3	Electives—Non-Commerce*	6
Mgmt. 111—Manufacturing	3	Electives—Unrestricted	3
Electives—Non-Commerce*	6		
TOTAL	33	TOTAL	33

Finance

This program is designed to meet the needs of those students who plan to enter government service or to become associated with the financial or insurance department of banks, commercial firms, and industrial organizations.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Bus. Law 111—Legal Environment	3	Econ. 115—Labor Economics	3
Bus. Law 112—Commercial Law	3	Econ. 241—Public Finance	3
Econ. 111—Money and Banking	3	Fin. 150—Investments	3
Econ. 125—Statistics	3	Mgmt. 225—Business Policy	3
English 123—Business English	3	Electives—Commerce	12
Finance 111—Business Finance	3	Electives—Non-Commerce*	6
Finance 112—Financial Management	3	Electives—Unrestricted	3
Mgmt. 111—Manufacturing	3		
Mrkt. 111—Marketing	3		
Electives—Non-Commerce*	6		
TOTAL	33	TOTAL	33

Industrial Management

This program is designed to prepare students for the many types of positions in industrial management, especially those in production and industrial relations. Although it does not provide technical training, it does provide a foundation upon which specialized training can be developed.

*Students must observe the University Core Curriculum Requirements as to distribution of elective courses. During the four years, in addition to the required courses, the student must complete 12 hours of Group A electives, 6 hours of Group B electives, and 9 hours of Group C electives from the list of approved electives.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Acctg. 115—Cost Accounting	3	Econ. 111—Money and Banking	3
Bus. Law 111—Legal Environment	3	Econ. 115—Labor Economics	3
Bus. Law 112—Commercial Law	3	Mgmt. 216—Personnel Mgmt.	3
Econ. 125—Statistics	3	Mgmt. 225—Business Policy	3
English 123—Business English	3	Electives—Commerce	12
Finance 111—Business Finance	3	Electives—Non-Commerce*	6
Mgmt. 111—Manufacturing	3	Electives—Unrestricted	3
Mgmt. 112—Prodn. Planning and Control	3		
Mrkt. 111—Marketing	3		
Electives—Non-Commerce*	6		
TOTAL	33	TOTAL	33

Marketing

The marketing program is designed to prepare students for careers in the field of distribution, at the manufacturing, wholesaling, or retailing level.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Bus. Law 111—Legal Environment	3	Econ. 111—Money and Banking	3
Bus. Law 112—Commercial Law	3	Mrkt. 120—Advertising	3
Econ. 115—Labor Economics	3	Mrkt. 215—Marketing Research	3
Econ. 125—Statistics	3	Mgmt. 225—Business Policy	3
English 123—Business English	3	Electives—Commerce	12
Finance 111—Business Finance	3	Electives—Non-Commerce*	6
Mgmt. 111—Manufacturing	3	Electives—Unrestricted	3
Mrkt. 111—Marketing	3		
Mrkt. 112—Marketing Mgmt.	3		
Electives—Non-Commerce*	6		
TOTAL	33	TOTAL	33

B.S. IN ECONOMICS PROGRAM

The economics program is designed for those who wish to emphasize economics in their education for a business career, for those who wish to undertake graduate work for an advance degree in this field, and for those who wish to enter government service.

JUNIOR YEAR		SENIOR YEAR	
Courses	*Hr.*	*Courses*	*Hr.*
Econ. 111—Money and Banking	3	Econ. 222—History of Econ. Thought	3
Econ. 125—Statistics	3	Econ. 241—Public Finance	3
Econ. 211—Micro Economic Analysis	3	Electives—Commerce[1]	15
Econ. 212—Macro Economic Analysis	3	Electives—Non-Commerce*	6
Electives—Commerce[1]	9	Electives—Unrestricted	6
Electives—Non-Commerce*	12		
TOTAL	33	TOTAL	33

[1]Of the Commerce electives, at least 9 hours must be in Economics and 9 hours must be in courses in the College of Commerce other than Economics.

*Students must observe the University Core Curriculum Requirements as to distribution of elective courses. During the four years, in addition to the required courses, the student must complete 12 hours of Group A electives, 6 hours of Group B electives, and 9 hours of Group C electives from the list of approved electives.

Courses of Instruction*

ACCOUNTING**

Professor VINCENT; Assistant Professors JOHNSON and MAUST; Lecturers CROASMUN and SKAGGS.

1. PRINCIPLES OF ACCOUNTING, I, II. 3 hr. PR: Sophomore standing. The fundamentals of accounting for business enterprises: the accounting cycle, journals and ledgers, working papers, statements.

2. PRINCIPLES OF ACCOUNTING. I, II. 3 hr. PR: Accounting 1. Further study of the accounting process with emphasis on assets, liabilities, and net worth; manufacturing accounts; analysis of financial statements.

111. INTERMEDIATE ACCOUNTING. I. 3 hr. PR: Accounting 2. Analysis of accounting theory and practice as applied to business firms; assets valuation, liabilities, income determination.

112. INTERMEDIATE ACCOUNTING. II. 3 hr. PR: Accounting 111. A continuation of Accounting 111.

113. ADVANCED ACCOUNTING. II. 3 hr. PR: Accounting 112. Accounting for partnerships, consolidations, installment sales, consignments, receiverships, reorganizations, branches, foreign exchange, and estates and trusts.

115. COST ACCOUNTING. I. 3 hr. PR: Accounting 2. Fundamentals of cost determination with emphasis on the significance of cost data and their interpretation; process, job-order, and standard costs.

211. ACCOUNTING SYSTEMS. I. 3 hr. PR: Accounting 112. The adaption of accounting procedures to the demands of the firm, with emphasis on theoretical factors important to efficiency and internal control; system surveys and reports, the design of forms, office machine applications.

213. INCOME TAX ACCOUNTING. I. 3 hr. PR: Accounting 112. Tax theory and practice as developed from the regulations of the Internal Revenue Service; problems in preparation of tax returns for individuals, partnerships, and corporations.

214. INCOME TAX ACCOUNTING. II. 3 hr. PR: Accounting 213. A continuation of Accounting 213.

216. ADVANCED COST ACCOUNTING. II. 3 hr. PR: Accounting 115. Advanced work in the application of cost theory and procedures to cases and problems, which emphasize the managerial use of cost information.

217. AUDITING THEORY. I or II. 3 hr. PR: Accounting 112. Auditing fundamentals; objectives, standards and procedures; introduction to working-paper techniques; procedure statements of the American Institute of CPA's.

218. AUDITING PRACTICE. I or II. 3 hr. PR: Accounting 217. Application of auditing theory and procedures, with emphasis on decisions which invoke judgment and are important in independent audits; audit working papers and reports; case studies.

224. ADVANCED ACCOUNTING PROBLEMS. I or II. 3 hr. PR: Minimum of 18 hours in accounting with an average grade of "B" or higher. Analysis and solution of representative C.P.A. problems.

*The following abbreviations are used in this section:
I—course given in the first semester
II—a course given in the second semester
I, II—a semester course given in each semester
I and II—a course given throughout the year
PR:—prerequisite

**Economics 2 is a prerequisite to all upper-division courses.

230. Advanced Accounting Theory. I or II. 3 hr. Accounting 112, 115, and consent. A critical analysis of accounting concepts and standards with emphasis on their origin, development, and significance.

301. Managerial Control. II. 3 hr. PR: Accounting 2 and Economics 125. The use and significance of the quantitative techniques of accounting, statistics, and budgeting for planning, control, and decision making.

329. Seminar in Accounting. I or II. 3 hr.

395. Thesis in Accounting. I, II. 1-6 hr.

BUSINESS LAW**

Assistant Professor Hartzler.

111. Legal Environment of Business. I, II. 3 hr. The nature of law and the judicial system. The relationship of law, ethics, and cultural values to business enterprise. Substantive law of contracts, sales, and credit transactions and the social and economic consequences of court decisions.

112. Commercial Law. I, II. 3 hr. PR: Business Law 111. Substantive law of agency, partnerships, corporations, negotiable instruments, and property and their social and economic functions.

ECONOMICS**

Professors Alvis, Campbell, L. Fishman, Roberts and Thompson; Associate Professor Gavett; Assistant Professors Leyden, Mischaikow, Newhouse, and Stocks; Visiting Assistant Professor Mattis; Instructor Cecil; and Lecturers Cross, B. Fishman, and Parsons.

1. Principles of Economics. I, II. 3 hr. PR: Sophomore standing. Principles of resource allocation, income, output and price determination under different competitive conditions; money, banking, and monetary policy; national income, employment, and fiscal policy; taxation and government spending; international economics, underdeveloped areas, and comparative economic systems.

2. Principles of Economics. I, II. 3 hr. PR: Economics 1. A continuation of Economics 1.

111. Money and Banking. I, II. 3 hr. Our system of monetary and banking arrangements, viewed in relation to functioning of the economic system as a whole.

115. Labor Economics. I, II. 3 hr. An introduction to labor economics and labor relations in industry, including the interaction of economic forces, union policies, personnel practices, and labor law.

125. Statistics. I, II. 3 hr. PR: Math. 2 or 3. Basic statistical methods employed in collection, presentation, analysis, and interpretation of business and economic data such as analysis of frequency distributions, time series, inference, index numbers, and correlation.

205. Current Economic Problems. S. 3 hr. PR: Economics 1 and 2 or consent. For students in Education only. A course designed to acquaint public school teachers with reliable source material in economics and to instruct them in studying current economic problems.

210. Comparative Economic Systems. I or II. 3 hr. Structure and processes of existing economic systems throughout the world including review of basic principles of free enterprise, socialistic, communistic, and fascistic societies. Comprehensive analysis based on current and recent experiments in these economies.

**Economics 2 is a prerequisite to all upper-division courses.

211. Micro Economic Analysis. I. 3 hr. A study of price and output determination and resource allocation in the firm under various competitive conditions.

212. Macro Economic Analysis. II. 3 hr. An analysis of the forces which determine the level of income, employment, and output. Particular attention is given to consumer behavior, investment determination, and government fiscal policy.

217. Trade Unionism. I or II. 3 hr. PR: Economics 115 or consent. An analysis of the structure, government, attitudes, and policies of organized labor; the implications of union policy.

218. Collective Bargaining. I or II. 3 hr. PR: Economics 115 or consent. Theory and practice of collective bargaining; including contract issues, types of relationships, and the role of government policy.

219. Economics of Wages. I or II. 3 hr. PR: Economics 115 or consent. The determination of wage levels and structure; the functioning and organization of labor markets.

220. Introduction to Quantitative Analysis. I or II. 3 hr. PR: Economics 125. Study of the principal mathematical techniques employed in economic analysis; an introduction to econometrics.

222. History of Economic Thought. II. 3 hr. Economic ideas in perspective of historic development.

225. Transportation. I. 3 hr. Development of an inland transportation system and relations and policies of transport agencies.

230. Public Utilities. II. 3 hr. Development of regulation; economics of valuation and rate making.

235. Economic Growth and Fluctuations. I or II. 3 hr. PR: Economics 125 or consent. Industrial fluctuations; causes and possible remedies.

241. Public Finance. I or II. 3 hr. Governmental fiscal organizations and policy; taxes and tax systems with particular emphasis upon the Federal Government and the State of West Virginia.

245. Government and Business. I or II. 3 hr. Government in its role of adviser and umpire; analysis of governmental policies and practices affecting business.

250. International Economics. I or II. 3 hr. Development of trade among nations; theories of trade; policies, physical factors, trends, and barriers in international economics.

251. Economic Development. I or II. 3 hr. A comprehensive study of the problems, changes, and principal policy issues faced by non-industrialized countries in the process of economic development.

255. Regional Economics. I or II. 3 hr. An analysis of the factors that promote or deter the economic growth of a region, with emphasis on such matters as population shifts, economic base studies, industrial location analyses, input-output techniques, regional income estimation, local multiplier and cycle concepts, and the role of government in regional growth.

256. Advanced Statistics. II. 3 hr. PR: Economics 125 or equiv. An advanced approach to statistical analysis with emphasis on probability, inference, and multi-varied statistical techniques.

301. Managerial Economics. II. 3 hr. An analysis of markets and the problems of management in appraising business conditions and in adjusting to changes in product demand, costs, level of output, and profits.

302. Research and Reports. I. 3 hr. A study of sources of business information and research procedures, with application in the preparation of reports.

319. Seminar in Economics. II. 3 hr.

320. Quantitative Analysis. II. 3 hr. PR: Economics 220. Econometrics and an examination of mathematical models employed in economic analysis, such as linear programming, input-output analysis, game theory, and statistical decision making.

395. Thesis in Economics. I, II. 1-6 hr.

FINANCE**

Associate Professor Wright; Assistant Professor Newhouse; Lecturer Trosch.

111. Business Finance. I, II. 3 hr. PR: Accounting 1 and 2 or consent. A study of the activities of the finance manager in the planning, acquisition, and administration of funds used in a business enterprise.

112. Financial Management. II. 3 hr. PR: Finance 111. Application of fundamentals and theory to the analysis of cases in business finance.

115. General Insurance. I, II. 3 hr. Theory of risk and its application to insurance; principles underlying all forms of insurance—life, property, casualty, fire, and surety.

120. Life Insurance. I. 3 hr. PR: Finance 115. Principles of life-insurance protection; legal regulation of insurance companies.

150. Investments. I. 3 hr. PR: Finance 111 or consent. Investment analysis and management for the individual and the financial institution.

161. Real Estate. II. 3 hr. Principles and practices of real estate business.

216. Risk Management. II. 3 hr. PR: Finance 115 or consent. A study of the transferable risks with which the enterpreneur must deal. Emphasis is on the process by which decisions are made for the handling of these risks, including an examination of the contributions and limitations of the insurance system.

313. Financial Administration. II. 3 hr. PR: Finance 111. A study of problems in business finance including those related to the financial structures of corporations and the working-capital and fixed-capital needs of a firm.

329. Seminar in Finance. I or II. 3 hr.

395. Thesis in Finance. I, II. 1-6 hr.

MANAGEMENT**

Professors Coleman and Isaack; Assistant Professor Hamelman.

105. Management Process. I, II. 3 hr. A study of management as a process comprised of the functions of planning, organizing, directing, and controlling business activities. Emphasis is placed on management as a rational, orderly, intellectual process for making resources productive.

111. Manufacturing. I, II. 3 hr. A survey of the important activities of the manufacturing function including organization, economic limitations affecting manufacturing, and control systems and analytical tools used by manufacturing managers.

**Economics 2 is a prerequisite to all upper-division courses.

112. Production Planning and Control. II. 3 hr. PR: Management 111. The management of manufacturing and production activities with emphasis on their coordination and control to achieve production goals.

213. Problems in Business Administration. I or II. 1-3 hr.

216. Personnel Management. I, II. 3 hr. Principles and practices in the direction, coordination, and remuneration of manpower.

225. Business Policy. I, II. 3 hr. PR: Senior standing and consent. Integrated study of policies, organization, facilities, and control techniques of business enterprises.

301. Administrative Practices. I. 3 hr. PR: Management 105 or consent. A study of interpersonal relationships through which administration becomes effective. Emphasis is on the human factors, but the influences of economic and technological factors are also considered. Focus is on the importance of harmony between individual needs and organizational goals.

313. Production Administration. I. 3 hr. PR: Management 111. The review and application of new analytical techniques to complex manufacturing problems.

323. Administrative Policy. II. 3 hr. PR: Consent. An integrated study of policies, organization, facilities, and control techniques of business enterprises.

329. Seminar in Management. I or II. 3 hr.

395. Thesis in Management. I, II. 1-6 hr.

MARKETING**

Professor Roberts; Associate Professor Crooks; Assistant Professor Haas.

111. Marketing. I, II. 3 hr. Analysis of those activities through which business firms direct the flow of their goods and services to consumers and users.

112. Marketing Management. I, II. 3 hr. PR: Marketing 111. The application of fundamentals and theory to the analysis of marketing cases and the development of marketing strategies.

115. Retailing. I, II. 3 hr. PR: Marketing 111. Management of retailing establishments, with emphasis on organization, merchandising, buying, sales promotion, customer services, and control of operations.

120. Advertising. I, II. 3 hr. PR: Marketing 111 and 112. Introduction to principles and practices of advertising, including preparation of a complete advertising campaign.

210. Industrial Purchasing. I. 3 hr. PR: Marketing 111. A survey of corporate procurement problems facing modern purchasing executives.

215. Marketing Research. II. 3 hr. PR: Marketing 111. The utilization of present-day marketing research techniques in the solution of practical marketing problems, with particular reference to West Virginia.

313. Marketing Administration. I. 3 hr. PR: Marketing 111. The analysis of problems met by management in distributing goods and services efficiently to consumers.

329. Seminar in Marketing. I or II. 3 hr.

395. Thesis in Marketing. I, II. 1-6 hr.

INDUSTRIAL RELATIONS

Director GAVETT.

This program provides graduate professional education for industrial relations.

THE GRADUATE INDUSTRIAL RELATIONS PROGRAM

The degree of Master of Science with a major in Industrial Relations is offered in recognition of the growing need for specialized, interdisciplinary training in this field. The curriculum, drawn from relevant course offerings in a number of colleges, schools, and departments of the University, constitutes an integrated program of study in labor and industrial relations.

The field of industrial relations is not a separate, basic discipline like economics, political science, or sociology. Rather it represents the empirical study and practical application of knowledge gained in all the social sciences to the problem rising out of the employee-employer and union-management relationships.

Admission requirements and procedures are given in the *Announcements* of the Graduate School.

COURSES OF INSTRUCTION

The candidate must fulfill the general requirements of the Graduate School and must complete 30 hours of graduate work including:

1. Industrial Relations 330. SEMINAR IN INDUSTRIAL RELATIONS. II. 3 hr. The seminar deals with research methods and an interdisciplinary analysis of problems in industrial relations. The faculty is drawn from a number of separate disciplines.

2. Industrial Relations 340. THESIS IN INDUSTRIAL RELATIONS. I, II, S. 1-6 hr. Total minimum requirement, 6 hours.

3. A minimum of 15 hours chosen from the following courses in industrial relations after consultation with the Director of the Institute. (In general a student should choose no more than 6 of the required 15 hours in any one subject-matter area.)

Economics	*Hr.*
217. Trade Unionism	3
218. Col. Barg. and Lab. Rel.	3
219. Econ. Wages and Lab. Mkt.	3
Engineering of Mines	
215. Indust. Safety Engr.	2
History	
281. American Lab. Movement	3
Industrial Engineering	
240. Motion and Time Study	3
288. Job. Eval. and Wage Incent.	3
370. Theor. Indust. Eng. and Org.	3
Law	*Hr.*
264. Labor Law	3
Management	
216. Personnel Management	3
Political Science	
243. Publ. Pers. Adm.	3
Psychology	
214. Job Analysis	3
244. Personnel Psychology	3
314. Prac. Indust. Interv.	3
Sociology	
250. Human Rel. in Indust.	3

4. With the consent of the adviser the remaining 6 or more semester hours may be selected from the following courses:

Economics	*Hr.*
210. Comp. Econ. Systems	3
221. Economic Theory	3
235. Business Cycles	3
245. Govt. and Business	3
256. Advanced Statistics	3
Education	*Hr.*
374. Counseling Techniques	2
375. Indiv. Invt. Techn.	2
Journalism	
212. Public Relations	3

Management *Hr.*
225. Business Policy 3

Industrial Engineering
290. Indust. Statistics 2
294. Standard Mfg. Costs 3

Political Science
232. Publ. Opinion and Prop. 3
241. Adm. Org. and Man. 3

Psychology
205. Individual Differences 2
216. Attitudes and Prop. 3
225. Group Psychom. Testing 3
229. Abnormal Psychology 3
236. Psychology of Adjustment 3
260. Statis. Methods of Psych. 3
386. Rehab. Couns.—Problems and Workshop 1-3

Social Work
285. Intro. to Publ. Welfare 3
304. Community Relationships 3
306. The Social Services 3

Sociology
220. Social Change 3
244. Culture and Personality . . 2 or 3
270. Group Dynamics 3

The College of Education

GENERAL INFORMATION

In 1901 a department of Education was established in the College of Arts and Sciences of West Virginia University. Subsequently, departments of education evolved in the College of Engineering and the School of Music. In 1927, the College of Education was established by the Board of Governors of the University to unify professional training for school service.

The College of Education provides training in all areas of specialization in public-school and higher education. It has resident courses of instruction, facilities for research, the University High School and cooperating public schools for observation, student teaching, directed supervision, and experimentation.

The College of Education comprises the College with its resident courses of instruction and its facilities for research; University High School with its opportunities for observation, student teaching, directed supervision, and experimentation; and cooperating public schools for supervised student-teaching experience.

The College of Education is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary teachers, secondary teachers, school service personnel and school administrators, with the Doctor's Degree as the highest degree approved.

Admission to the College of Education

The requirements for admission to the University College of Education are: (a) graduation from a first-class high school with University entrance requirements satisfied, and (b) 58 semester hours of approved college work with an average of at least two grade points per credit hour on all work presented. Students in the other colleges or universities who contemplate transferring to the College of Education should so order their courses of study as to meet junior standing and should be fulfilling the curricular requirements for the certification of teachers.

Orientation and Selection

To assist students in choosing a career in the area of teaching and to maintain adequate standards for admission to teacher-training, the College of Education requires all students pursuing teacher-education programs to participate in and complete satisfactorily the Orientation and Selection Program. The student is enrolled in this program concurrently with the first course taken in the College of Education. The transfer student who has completed the first course in Education at another institution is required to complete the requirements of the Orientation and Selection Program at West Virginia University.

Adviser

When the student enters the College of Education he is assigned an adviser from the College. The student will plan his program of work—required courses, electives, examinations, conference courses, etc.—in consultation with his adviser. Although the adviser desires to be helpful, this does not absolve the student from becoming familiar with all pertinent regulations and planning his program of work in accordance with the objective of his choice.

West Virginia Board of Education Regulation For Certification of Teachers

The West Virginia Board of Education requires that 100 semester hours of the 128 required for certification shall be completed in regularly scheduled campus courses. The 28 hours of permissible nonresidence courses may be earned by extension, home study (correspondence), radio, television, special examinations, and/or military service.

Renewal of Professional Certificates

Effective September, 1963, all courses for renewal of Professional Certificates must be selected in terms of the teacher's objctives for the improvement of instruction and must be recommended by the county superintendent on a form supplied by him. The student should have this completed form when he registers.

Maximum Work

Students may not, without special permission, register in the College of Education for more than 18 hours during any semester and 12 hours during any summer session. Any student who desires to do irregular work, or to carry more than the prescribed maximum number of hours, must obtain written permission from his adviser and the Scholarship Committee of the College. This permit is not valid until it has been filed with the Registrar.

Method of Computing Grade-Point Average

The student is responsible for each registration in a course. The grade-point average is computed on all work attempted, including work attempted at the University and at other institutions of collegiate grade.

To be eligible for recommendation for the degrees of Bachelor of Science in Secondary Education and Bachelor of Science in Elementary Education, a candidate must:

1. Comply with the general regulations of the University concerning entrance, advanced standing, classification, examination, marks, grade points, etc.
2. Satisfy the following requirements:
   a. Complete the required courses and the minimum number of hours of approved elective courses in Education.
   b. Select and pursue two teaching fields for the B.S. Degree in Secondary Education and the B.S. Degree in Elementary Education except where otherwise prescribed in specific teaching fields.
   c. Adhere to the patterns prescribed in completing the teaching fields.
   d. Present a minimum of 128 hours of approved college credit, with a general average of "C" as described under General Requirements for Certification. The candidate must have completed 26 hours after enrolling in the College of Education.
   e. Be at least 18 years of age, of good moral character, interested in educational work, and mentally, physically, and otherwise qualified to perform the duties of a teacher.

Fulfillment of the requirements for graduation from the College of Education of West Virginia University qualifies a candidate to apply for recommendation for a West Virginia Professional Certificate.

The College of Education may require appropriate standardized tests of its graduates.

UNIVERSITY CORE CURRICULUM REQUIREMENTS

All undergraduates entering the University for the first time in September, 1964 or later must complete the University Core Curriculum requirements in order to graduate. (See page 93).

General Requirements For Professional (First Class) Certificates

In order to teach in the public schools of West Virginia, one must hold a certificate issued by the West Virginia State Department of Education. Before any West Virginia University applicant is eligible to receive a Professional Certificate he must have: (1) met the minimum State requirements, (2) met the University degree requirements, and (3) been recommended by the Dean of the College of Education as herein prescribed.

The College of Education will inform each of its students who is a prospective teacher, and any other prospective teacher, upon request, of the requirements for certification, and assist him in preparing a program of study to meet these requirements. It is the obligation of the student who desires such counsel to arrange a conference some time before the end of the sophomore year.

A candidate for certification is required to achieve a grade-point average of 2.0 ("C") or better as follows: (1) on the total of college credits earned; (2) on the hours earned in Education; (3) in student teaching; and (4) in each of the teaching fields required for all teaching certificates.

The Dean of the College of Education recommends candidates for Professional Certificates only after the completion of work for the baccalaureate degree. To be eligible for recommendation by the University for any West Virginia Professional Certificate, the applicant must have done student teaching under the supervision of the College of Education.

At least 45 semester hours of upper-division work, West Virginia University standards, are required for all teaching certificates. The qualifications herein prescribed are minimum, not optimum or maximum, and must be met by all candidates.

GENERAL SUBJECT-MATTER AND EDUCATION REQUIREMENTS FOR PROFESSIONAL CERTIFICATES VALID FOR FIVE YEARS

Required Courses	*Professional Grades* 1-9	*Professional Grades* 7-12	*Professional Grades* 1-12 *Music & Speech*
English and Speech	*Hr.*	*Hr.*	*Hr.*
Written and Spoken English English 1, 2	6	6	6
Advanced Written and Spoken English English 18	3	3	3
Study and Appreciation of Literature			
English 5 or 6 (American)	3)	3)	3)
Or	*or*	*or*	*or*
English 3 or 4 (English)	3)	3)	3)
Backgrounds of (Child) Literature Lib. Sci. 203	3		
Speech			
Speech 3 (Voice and Diction) *or*	3		
Speech 11 (Public Speaking)	3		
Minimim Requirement	18	12	12

Required Courses	*Professional Grades 1-9*	*Professional Grades 7-12*	*Professional Grades 1-12 Music & Speech*
Social Science			
Development of Social Institutions Hist. 1, 2	6)	6)	6)
Or	*or*	*or*	*or*
Humanities 1, 2	8)	8)	8)
Fundamental Social Problems Soc. Sci. 1, 2	8	8	8
American History: Hist. 52, 53	6		
West Virginia History: Hist. 150	3		
Geography Geog. 7 (Introduction) *or* Geog. 109 (Econ.)	3		
Minimum Requirement	26-28	14-16	14-16
Science and Mathematics	*Hr.*	*Hr.*	*Hr.*
Biol. 1, 2		8)	8)
Or		*or*	*or*
Phys. Sci. 1, 2		8)	8)
Biol. 1, 2 *And* Phys. Sci. 1			
Or			
Phys. Sci. 1, 2 *And* Biol. 1	12		
Conservation Forestry 140	3		
Mathematics for Teachers Math. 6	3		
Minimum Requirement	18	8	8
Music			
Music in Human Relations Music 10	2	2	2
Music as an Art and Science Music 11	2		
Music Materials and Procedures Music 12	2		
Minimum Requirement	6	2	2
Art			
Art Appreciation Art 30 *or* 130	2	2	2
Creative Expression in the Fine Arts: Art 1	2		
Creative Expression in the Applied Arts: Art 2	2		
Minimum Requirement	6	2	2
Physical Well-Being			
Orientation in Physical Education			
For Men, Phys. Ed. 1, 2	0	2	2
For Men, Phys. Ed. 1, 2, 43	4	0	0
For Women, Phys. Ed. 3; 3 hr. from 4 to 25, 101, 102	0	4	4
For Women, Phys. Ed. 41, 42, 43	4	0	0
Health Ed. 101 *or* 102	2	2	2
Minimum Requirement	6	4-6	4-6

(Even if the Physical Education requirement for graduation from the University has been waived because of a special permit from the University Health Service, 2 semester hours in Physical Education are required of an applicant for a Professional Certificate, Grades 7-12; or 4 semester hours of Physical Education are required of an applicant for a Professional Certificate, Grades 1-9, or for a Professional Certificate, Grades 1-12).

Professional Education	*Professional Grades* 1-9	*Professional Grades* 7-12	*Professional Music Grades* 1-12	*Professional Speech and Hearing Therapy Grades* 1-12
	Hr.	*Hr.*	*Hr.*	*Hr.*
Orientation and Selection, Ed. 100	1	1	1	1
Human Growth and Development, Ed. 105, 106	6	6	6	6
Stud. Teaching, Sec. Sch., Ed. 124		6		
Stud. Teaching, Sec. Sch. Music, Ed. 125			4	
Prin. of Teaching, Sec. Sch. Ed. 120		4	4	
Mat. and Methods, Sec. Sch., Ed. 150-170		2	2	
Approved Electives in Sec. Ed.		2		
Stud. Teaching, El. Sch. Music, Ed. 115			3	
Mat. and Meth. Elem. Sch. Music, Ed. 130			2	
Mat. and Meth. in Public School Speech and Hearing Therapy, Grades 1-12, Ed. 127				4
Clinical Practice in Pub. School and Hearing Therapy, Ed. 128				6
Psych. and Management of the Elem. School, Ed. 141	3			3
Language Arts in the Elem. School, Ed. 142	3			
Mathematics in the Elem. School, Ed. 143	2			
Social Studies in the Elem. School, Ed. 144	2			
Science in the Elem. School, Ed. 145	2			
Student Teaching in the Elem. School, Ed. 146	6			
Minimum Requirements	25	21	22	20

NOTE: To be recommended by the University for any Professional Certificate, students shall complete a minimum of 8 semester hours in student teaching and methods at the University.

PROGRAMS FOR PROFESSIONAL CERTIFICATES, GRADES 1-9

Requirements for the Degree of Bachelor of Science in Elementary Education and for Recommendation for the Professional Certificate, Grades 1-9

Foundation: Lower-Division Work

In preparation for admission to the College of Education and the work of preparing for teaching in elementary schools, students will register the freshman and sophomore years in the College of Arts and Sciences and pursue the program of general education that the State Board of Education has prescribed for all students who seek recommendation for teaching certificates. This program of prescribed work is included in the "Curriculum for Professional Certificates, Grades 1-9."

Training: Upper-Division Work

Admission: For admission to the prescribed courses in Elementary Education (Educ. 141, 142, 143, 144, 145 and 146), including the noncredit Conference course, students shall register the final two years in the College of Education.

Subject Matter: In lower-division work students should pursue the lower-division required courses, so that the greatest possible number of hours taken during the junior and senior years may be courses giving upper-division credit.

Graduation and Certification Requirements: To become eligible for recommendation for the degree of Bachelor of Science in Education and for the Professional Certificate, Grades 1-9, the student must complete the required curriculum and plan of work with a grade-point average of 2.0 ("C") or better, as follows: (1) on the total of college credits earned; (2) on the hours earned in Education; (3) in each of two teaching fields; and (4) in student teaching; and have been enrolled in the College of Education for at least 26 semester hours of work, including a minimum of 8 semester hours in student teaching and methods taken at the University.

Program for Undergraduate Elementary Education, Grades 1-9

Required Courses

		Hr.
	Sophomore Year	
Ed. 100.	Orientation and Selection	1
	Junior Year	
Ed. 105.	Human Growth and Development—Introduction	3
Ed. 106.	Human Growth and Development—Principles of Learning	3
Ed. 141.	Psychology and Management of the Elementary School	3
Ed. 142.	Reading and Other Language Arts in the Elementary School	3
Ed. 143.	Arithmetic in the Elementary School	2
	Senior Year	
Ed. 144.	Social Studies in the Elementary School	2
Ed. 145.	Science in the Elementary School	2
Ed. 146	Student Teaching in the Elementary School	6
	or	
Ed. 223.*	Clinical Experience in Elementary Education	3
Ed. Elective		0-3
		25

*Students who have had three or more years of teaching experience in the elementary school may, upon recommendation of the Chairman of Undergraduate Elementary Education and approved by the Dean of the College of Education, take 3 semester hours of clinical experience in elementary education.

Requirements for Provisional Professional Certificate, Grades 1-9

Provisional Professional Certificates, Grades 1-9 (valid for three years for teaching in the elementary school) will be issued to applicants who:

1. Have an undergraduate degree and the recommendation of the Dean of the College of Education.
2. Are within 18 hours of meeting the requirements for a Professional Certificate, Grades 1-9.
3. Have completed 15 hours of Elementary Education (including a course in student teaching), selected from courses applicable for a Professional Certificate, Grades 1-9.
4. Have completed a part of the required courses in English, social studies, science and mathematics, music, art, and physical education.

Endorsement to Teach in Junior High School

The Professional Certificate, Grades 1-9, *must be endorsed* with at least *two* fields for teaching in Grades 7 through 9 (junior high school). A minimum of 18 hours (15 hours in mathematics) of work prescribed for a high school teaching field is required in each field. Below are listed the general categories of work for each field. For each teaching field suggested University courses to implement the State recommendations for a field to teach in Grades 7 through 9 are listed. The listed courses have been suggested by the departments concerned and approved by the College of Education. However, these suggestions should be regarded as guides rather than limitations. It should be borne in mind, however, that any deviation from the recommended courses must still conform to the listed general categories.

Art—(Drawing, design, and painting)	*Hr.*
Art 105 or 106, History	3
Art 111, Drawing	3
Art 113, Painting	3
Art 121-122, Design	6
Art 126, Modeling	2
Art. 220, Theory	2
or	
Art 225, Theory	3

Commerce—(Typewriting, shorthand, and accounting)

English—(Composition and Literature, English and American)

Required:	
English 3, Survey: English Literature*	3
English 4, Survey: English Literature*	3
English 5, American Literature*	3
English 6, American Literature*	3
Remaining hours from following list:	
English 138, English Literature, 1660-1744	3
English 139, English Literature, 1744-1798	3
English 140, Elizabethan Poetry and Prose	3
English 141, Literature of the Seventeenth Century	3
English 142, Shakespeare	3
English 166, American Fiction	3
English 173, Poetry	2
English 175, The Short Story	2
English 249, The Romantic Movement	3
English 250, American Romanticism	3
English 258, Victorian Prose	3
English 270, American Poetry	3

*For certification with a field in English for Grades 1-9, six semester hours of literature, English 3 or 4 and 5 or 6, are required. The only substitutions which may be approved are English 163 and 164 for English 3 and 4.

Foreign Language—(Composition, grammar, and literature)

General Science—(General biological science and general physical science, chemistry or physics)

Phys. Sci. 1, Introductory General Course	4
Phys. Sci. 2, Introductory General Course	4
Biol. Sci. 1, Introductory General Course	4
Biol. Sci. 2, Introductory General Course	4
Astronomy 106, Descriptive Astronomy	3

Home Economics—(Foods and nutrition, textiles and clothing)

FN 1, Elementary Nutrition	3
TC 2, Principles of Clothing Construction	3
FN 15, Food Selection and Preparation *or* FN 135, Food and People	3
TC 17, Textiles	3
CDFR 106, Child Development	3
CDFR 114, Family Relations	3
HMFE 230, Home Management, Principles and Application	3

Industrial Arts—(Mechanical drawing, general shop, and organization of industrial arts)

The Department of Industrial Arts makes no recommendation for a minor teaching field including fewer hours than the 28 hours required for "General Shop Endorsement" in Industrial Arts.

Mathematics—(Basic theory and skills)

Math. 3, College Algebra	3
Math. 4, Plane Trigonometry	3
Math. 15, Calculus I	4
Math. 116, Calculus II	4
Math. 117, Calculus III	4

(NOTE: Solid Geometry, ½ unit (or 1 unit of integrated geometry) is required. Advanced placement examinations may permit a student who has 1½ units or more of high school algebra to omit Math. 3, and a student who has ½ unit of trigonometry in high school to omit Math. 4 with appropriate credit for omitted courses.)

Music—(Theory and applied music)

Music 1, Theory	4
Music 100, 102, 103, 105, Band, Orchestra, Chorus	2
Music 140, History of Music	3
Music 150; 80-86, Applied Music: Voice, Piano, and Instruments	4
Music 182, Music Education (secondary)	3
Music 183, Conducting	2

Physical Education—(Health problems for the school child and organization and administration of health and physical education)

Required Courses	*Men*	*Women*
Phys. Ed. 31-32, Team Sports	0	2
Phys. Ed. 51, Fundamentals of Baseball and Gymnastics	2	0
Phys. Ed. 53, Junior & Senior High School Activities and Games	2	0
Phys. Ed. 61, Stunts, Tumbling, and Trampoline	0	1
Phys. Ed. 71, Orientation in Physical Education	2	2
Phys. Ed. 132, Folk Dancing	1	1
Phys. Ed. 177, History and Principles of Physical Education	3	3
Phys. Ed. 278, Administration of Physical Education	3	3
Health Ed. 101 or 102, The School Health Program	2	2
Safety Ed. 127, Accident Prevention and First Aid	2	2

Suggested Electives

Phys. Ed. 5, Ballroom Dance	1	1
Phys. Ed. 14, Elementary Swimming and Diving	0	1
Phys. Ed. 35, Modern Dance Technique	0	1
Phys. Ed. 52, Advanced Swimming, Life Saving, & Water Safety	1	0
Phys. Ed. 54, Individual and Dual Sports	2	2
Rec. 4, Recreation and the School	3	3

Social Studies—(American history and world geography)

Speech—(Fundamentals of speech, voice and diction, play directing, and speech correction)

Speech 3, Voice and Diction	3
Speech 6, Acting	3
Speech 11, Public Speaking	3
Speech 29, Oral Interpretation	3
Speech 162, Play Directing	3
Speech 250, Speech Correction	3

Teacher-Librarian—(Cataloguing and classification, book selection, and reference and bibliography)

Lib. Sci. 101, Reference and Bibliography	3
Lib. Sci. 203, Library Materials for Children	3
Lib. Sci. 205, Selection of Books and Related Materials for Young People	3
Lib. Sci. 207, School Library Organization and Administration	3
Lib. Sci. 222, Field Practice	3
Lib. Sci. 223, Cataloguing and Classification	3
Lib. Sci. 235, Library in the Elementary School	2

Professional Certificates, Grades 7-12, may also be endorsed to teach in junior high school upon completion of any of the fields listed above, provided the applicant has a regular first and second teaching field listed on his certificate. Certificates endorsed for teaching in junior high school, as described above, are also valid for teaching a minor assignment in Grades 10 through 12, with the exception that General Science is approved for Grades 7 through 9 only.

Program for Professional Certificate, Grades 7-12

Education: Courses Required and Electives Approved for the Professional Certificate, Grades 7-12

I. *Required Courses* *Hr.*

Sophomore or Junior Year

Ed. 100. Orientation and Selection	1
Ed. 105. Human Growth and Development—Introduction	3
Ed. 106. Human Growth and Development—Principles of Learning	3

Senior Year

Ed. 124. Student Teaching	4-6	) to be
Ed. 157-170. Materials and Methods	2	) taken as
Ed. 120. Principles of Teaching in Secondary Schools	4	) a block

II. *Approved Electives in Secondary Education—Junior or Senior Year* 2-3

Selected from Education:
Ed. 109, 150-170, 221, 259, 262, 270, 271, 275, 276, 277, 284, 285.

(A minimum of 21 semester hours of approved Education courses is required for a Professional Certificate, Grades 7-12, and a maximum of 24 semester hours will be accepted.)

High-School Teaching Fields

Students desiring to qualify for a Professional Certificate, Grades 7-12, must complete the requirements in two teaching fields.

AGRICULTURE—Vocational Agriculture	*First Teaching Field*
Minimum Requirements	50 hr.
I. *Required Courses*	
1. Farm Crops, Soils, and Horticulture Agr. 52, Agron. 2	7
2. Animal Industry and Veterinary Science (Animal, Dairy and Poultry Science) Animal Industry and Veterinary Science 51, Animal Nutrition 101	7
3. Agricultural Economics—Ag. Econ. 103, Ag. Econ. 104 and other two and three hour courses to be approved by adviser	8-9
4. Agricultural Engineering and Agricultural Mechanics Ag. Eng'g. 10, Ag. Mech. 152, Ag. Mech. 253, or other three hour courses to be approved by adviser	9
5. Plant or Animal Science An. Path. 102, or Pl. Path. 201	3-4
6. Agricultural Education 118	2
7. Orientation to Agriculture—Agr. 11 and 12	2
II. *Electives in the above fields and in Agricultural Education, Entomology, and Genetics*	10-12

Ag. Econ. 105, 110, 131, 200, 230
Ag. Educ. 134, 138
Ag. Mech. 200, 252, 254, 259, 270, 275, I.E. 7
Agronomy 210, 212, 216, 251, 254
An. Physiol. 100, 225
An. Prod. 103, 108, 109, 110, 123, 138, 141, 142, 143, 201, 222
Food Sci. 12, 106, 107, 124, 167
Vet. Sci. 206
Hort. 115, 116, 117, 141, 206, 208, 212, 229, 232, 234
Entomology 202, 203
Genetics 111, 221

NOTE: Teachers of Vocational Agriculture must be approved by the State Supervisor of Vocational Agriculture and the Vocational Agriculture Teacher Trainer.

ART	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	32 hr.	25 hr.
I. *Required Courses*		
1. Freehand Drawing: Art 11 *or* 111 *or* 115, 12 *or* 112	6	6
2. Design: Art 121, 122	6	6
3. Painting: Art 113, 114	6	6
4. Modeling: Art 126	2	2
5. History and Appreciation of Art: Art 30 *or* 130; 105 *or* 106	8-9	5
II. *Elective Courses: Art (unrestricted)*	3-4	

COMMERCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	32 hr.	27 hr.
I. *Required Courses*		
1. Business Mathematics (Math. 8)	3	3
2. Accounting: Accounting 1, 2	6	6
3. Marketing or Retailing: Marketing 111 or 115	3	3
4. Typewriting: Secretarial Studies 61, 62	4	4
5. Shorthand: Secretarial Studies 125, 126	8	8
6. Secretarial Training and Office Practice: Secretarial Studies 131	3	3
II. *Electives (unrestricted in the field)*	5	

NOTE: Economics 1 and 2 are prerequisite for Marketing 111 and 115 and may be used to meet elective requirements in the first teaching field.

ENGLISH	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	35-36 hr.	24 hr.
I. *Required courses (exclusive of 6 hr. of Freshman Composition)*		
1. Written or Spoken English English 18 (3 hr.) and Speech 3, 6, 11, *or* 29 (3 hr.)	6	6
2. Literature English 3 and 4, *or* 163 and 164 (6 hr.) Survey: English Literature English 5, 6 (6 hr.) Survey: American Literature	12	12
II. *Electives*	17-18	6
1. Literature (Upper-division period or type courses: include not more than 3 hr. in any one type or period. Suggested choices: 142, 160, 161, 166, 173, 175, 138 or 139, 140, 141; one or more "200" courses in authors or periods of special interest to the student.)	12	6
2. Two of the following Journ. 215 (2 hr.) Lib. Sci. 1 or 101 (3 hr.) Speech 162 (3 hr.)	5-6	

FOREIGN LANGUAGES

A. French	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses*		
1. Elementary French: French 1, 2	6	6
2. Intermediate French: French 3, 4	6	6
3. Advanced Grammar, Conversation, and Pronunciation: French 109, 231	6	6
4. Elementary Conversation: French 103, 104	6	6

II. *Elective Courses*: French 115, 116, 118 6

NOTE: Two semester hours may be deducted in the first teaching field for each high school unit with a maximum of six (6) hours deduction, unless the equivalent courses are taken for University credit.

B. German	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses*		
1. Elementary German: German 1, 2	6	6
2. Intermediate German: German 3, 4 ...	6	6
3. Spoken German: German 103, 104	6	6
4. Survey of German Literature: German 245*	3	3
5. History of German Language: Linguistics 251*	3	3
II. *Elective Courses*: (unrestricted)	6	

NOTE: Two semester hours may be deducted in the first teaching field for each high school unit with a maximum of six (6) hours deduction, unless the equivalent courses are taken for University credit.

*With the approval of the Chairman of the Department of Foreign Languages, courses on the 200 level may be substituted for German 245 and 251.

C. Latin	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses*		
1. Grammar and Composition: Latin 1, 2 ..	6	4
2. Cicero's Orations: Latin 4 or 203	3	3
3. Virgil's Aeneid: Latin 235	3	3
II. *Elective Courses*: Latin or Classics (unrestricted)	18	14

NOTE: Two semester hours may be deducted in the first teaching field for each high school unit with a maximum of six (6) hours deduction, unless the equivalent courses are taken for University credit.

D. Spanish	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses*		
1. Elementary Spanish: Spanish 1, 2	6	6
2. Intermediate Spanish: Spanish 3, 4	6	6
3. Elementary Conversation: Spanish 103, 104	6	6
4. Advanced Grammar and Conversation: Spanish 109, 110	6	3 (109 only)
5. Survey of Literature: Spanish 211, 212, *or* Golden Age: Spanish 221, 222	6	3

NOTE: Two semester hours may be deducted in the first teaching field for each high school unit with a maximum of six (6) hours deduction, unless the equivalent courses are taken for University credit.

HOME ECONOMICS—General Certificate	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	37 hr.	25 hr.
I. *Required Courses*		
1. Foods and Nutrition: FN 1, 15, 115, 101, 121, 135	8	6
2. Textiles and Clothing: TC 2 and 17; electives	8	6
3. Housing and Design: HD 3, 23, 123	8	4
4. Home Management and Family Economics: HMFE 130, 250 (210, 230 required)	8	4
5. Child Development and Family Relations: CDFR 106, 114 (required), 126	5	5

HOME ECONOMICS—Vocational Certificate	
Minimum Requirements	40
1. Foods and Nutrition: FN 1, 101, 121, 15, 115, 135, 215	8
2. Textiles and Clothing: TC 2, 102, 212, 222, 17, 117, 217, 232	8
3. Housing and Design: HD 3, 23, 123, 133	8
4. Home Management and Family Economics: HMFE 120, 130, 210, 230, 250, (210 and 230 required)	8
5. Child Development and Family Relations: CDFR 106, 114, 126, 206, 224, 264, 266 (106 and 114 required)	6
6. Electives	2

THE INDUSTRIAL ARTS

INDUSTRIAL ARTS (comprehensive) 52 hr.

Required Areas

General Shop Endorsement	28
Two Unit Shops	24

A student electing a comprehensive field in Industrial Arts shall complete in addition to the General Shop endorsement 24 semester hours within two of the four areas: power mechanics, electricity, graphics, manufacturing and fabrication. The 24 additional hours shall be divided evenly between the two areas selected.

GENERAL SHOP 28 hr.

Required Areas

General Shop—Ed. 107 (IA), Ed. 108 (IA)	6
Woodworking—Ed. 102 (IA), Ed. 103 (IA)	4
Metals—Ed. 104 (IA), Ed. 112 (IA)	4
Industrial Crafts—Ed. 121 (IA)	2
Drafting—Ed. 173 (IA), Ed. 174 (IA), ME 20, ME 26	4
Electricity and Electronics—Ed. 131 (IA), Ed. 132 (IA)	4
Graphics—Ed. 180 (IA)	2
Industrial Arts Laboratory Maintenance—Ed. 110 (IA)	2

Professional Education: Ed. 194, Ed. 181 4

*UNIT SHOP ENDORSEMENT**

A student qualifying for the General Shop Endorsement who does not desire a comprehensive field in Industrial Arts may qualify to teach a unit shop by completing six additional hours in one of the following units of specialization.

Suggested Areas	Hr.
Metals—Ed. 240 (IA), IE 7, IE 11, IE 15, IE 100	6
Wood—Ed. 242 (IA), Ed. 204 (IA)	6
Crafts—Ed. 243 (IA), Ed. 244 (IA), Art 126	6
Graphics—Ed. 246 (IA), Physics 257 or 116	6
Technical Drawing—Ed. 249 (IA), Ed. 238 (IA), Art 123	6

*A unit shop endorsement cannot be considered as a second single subject specialization.

MATHEMATICS	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	24 hr.	22 hr.
I. *Required Courses*		
Math. 3, College Algebra	3	3
Math. 4, Plane Trigonometry	3	3
Math. 15, Calculus I	4	4
Math. 116, Calculus II	4	4
Math. 117, Calculus III	4	4
II. *Electives*	6	4

For a first teaching field, six hours of electives are needed, numbered 200 or above; for the other teaching field, four hours of electives are needed, numbered 200 or above. Courses from both the fields of algebra and geometry must be included.

NOTE: Solid Geometry, ½ unit (or 1 unit of integrated geometry) is required. Advanced placement examinations may permit a student who has 1½ units or more of high school algebra to omit Math. 3, and a student who has ½ unit of trigonometry in high school to omit Math. 4 with appropriate credit for omitted courses.

MUSIC	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	50 hr	24 hr.
I. *Required Courses*		
1. Theory: Mus. 1, 2, 3, 4, 117, 118, 119, or 120	16	6
2. History or Appreciation of Music: selected from Music 140, 141, 280, 281	6	3
3. Applied Music: Piano, Voice, and at least two Band and Orchestral Instruments, selected from Music 80, 81, 82, 83, 84, 85, 86, 150 level 5*	16	8
4. Music Education and Organizations: First Field: Music 181 and Music 182 (both required); Music 183 and Music 184 (both required); two hours selected from Music 100, 102, 103, 105	12	
Second Field: Music 181 or Music 182; Music 183		5
Two hours selected from: Music 100, 102, 103, 105		2

NOTE: Students applying for the Professional Certificate, Grades 1-12, are required to complete 50 hours in Music.

*Education majors with first teaching field in Music must complete level 5 in the Applied major. (See School of Music Announcements for explanation of level 5).

PHYSICAL EDUCATION	*First Teaching Field*		*Other Teaching Field*	
Minimum Requirements	34 hr.		28-29 hr.	
I. *Required Courses*				
1. Anatomy and Kinesiology: Phys. Ed. 175	5		5	
2. Physiology: Zool. 271	4			
3. Principles of Organization and Administration of Physical Education: Phys. Ed. 278	3		3	
4. Health Education: Health Ed. 2, 102	4		4	
5. Physical Inspection and Correction of Remedial Defects: Phys. Ed. 176	2		2	
6. Theory and Practice in Physical Education	16		14	
	Men	*Women*	*Men*	*Women*
a. Orientation: Phys. Ed. 71	2	2	2	2
b. Team Sports: Phys. Ed. 51, 55, 56	5	0	5	0
Team Sports: Phys. Ed. 31, 32, 63	0	3	0	3
c. Recreational Activities: Phys. Ed. 52, 54	3	0	3	0
Phys. Ed. 33, 54, 61	0	4	0	3
d. School and Community Relations: Phys. Ed. 121; Recreation 4; Phys. Ed. 53	4	0	4	0
Safety Education 127; Recreation 4	0	3	0	4
e. Rhythmic Activities: Phys. Ed. 5, 132	2	0	1	0
Rhythmic Activities: Phys. Ed. 5, 35, 36, 132, 171	0	4	0	2

SCIENCES

A. BIOLOGICAL SCIENCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	32 hr.	24 hr.
I. *Required Courses*		
1. Biology 1, 2	8	8
2. Chemistry 1, 2 *or* Phys. Sci. 1, 2	8	6
II. *Electives (from below)*	16	10

Electives will be chosen from the following, and must include a minimum of 5 hours in plant life and 5 hours in annual life:

Bact. 141
Biol. 203, 204, 205, 206, 207, 209, 210, 211, 221
Bot. 161, 171, 204, 218, 224, 227, 263, 266
Entomol. 200, 202
Forestry 140, 141, 144, 145, 183
Genet. 111, 112, or 221
Plant Path. 201, 203
Zool. 210, 222, 223, 265, 271

NOTE: A candidate for a teaching certificate who elects Biological Science as a first teaching field may not elect Biological and General Science as a second teaching field.

B. BIOLOGICAL AND GENERAL SCIENCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	42 hr.	35 hr.
I. *Required Courses*		
1. Biol. 1, 2	8	8
2. Chem. 1, 2	8	8
3. Physics 1, 2 or 111, 102	8	8
4. Geol. 1, 2	3-4	3-4
II. *Electives*	14-15	8

1. Electives selected from those listed for teaching field in Biological Science (above)—a minimum of 8 hours for either teaching field. Must include a minimum of 4 hours in plant life and 4 hours in animal life. (Minimum of 16 hr. in Biological Science is required).
2. Chem. 105, 115, 131, or 163
3. Physics 113, 114, 116, 117, 118
4. Geol. 3, 170

NOTE: A candidate for a teaching certificate who elects Biological and General Science as a first teaching field may not elect Biological Science or Physical-General Science as a second teaching field.

C. PHYSICAL SCIENCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	36 hr.	24 hr.
I. *Required Courses*		
1. Chemistry: Chem. 1, 2	8	8
2. Chemistry: Chem. 105, 115, 131	3 or 4	3 or 4
3. Physics: Physics 1, 2 or 11, 102	8	8
II. *Electives—(at least 4 hours must be in Chemistry and/or Physics)*	16	4

1. Chemistry
2. Physics
3. Geology (not Geography)
4. Astronomy (Astron. 106, 3 hr.)

NOTE: A candidate for a teaching certificate who elects Physical Science as a first teaching field may not elect Physical and General Science as a second teaching field. Phys. Sci. 1, 2, not accepted.

D. PHYSICAL AND GENERAL SCIENCE	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	42 hr.	34 hr.
I. *Required Courses*		
1. Chemistry: Chem. 1, 2	8	8
2. Chemistry: Chem. 105, 115, 131	3 or 4	3 or 4
3. Physics: Physics 1, 2 or 11, 102	8	8
4. Biology: Biol. 1, 2	8	8
5. Geology: Geol. 1, 2	4	4

II. *Electives—(at least 4 hours must be in Chemistry and/or Physics)*	10	2
1. Chemistry		
2. Physics		
3. Geology: (not Geography)		
4. Biology		
5. Astronomy (Astron. 106, 3 hr.)		

NOTE: A candidate for a teaching certificate who elects Physical and General Science as a first teaching field may not elect Physical Science or Biological-General Science as a second teaching field.

E. GENERAL SCIENCE—(Although General Science is not recognized as a high school teaching field, it is recognized as a minor teaching field. See page 13)

SOCIAL STUDIES	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	30 hr.	24 hr.
I. *Required Courses (Exclusive of general Social Studies requirements)*		
1. History: Hist. 52, 53, 150 *or* 250	9	9
2. Political Science: Pol. Sci. 2, 120, 221	3	3
3. Economics: Econ. 1 or 2*	3	3
4. Sociology: Sociol. 1, 104, or any 200 course except 202 and 246	3	3
5. Geography: Geog. 7 *or* 109	3	3
II. *Electives (upper-division courses from the five departments listed above)*	9	3

*Only 3 hours of economics are required for certification, but Econ. 1 and 2 are prerequisite to all upper-division courses in economics.

SPEECH	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	36 hr.	24 hr.
I. *Required Courses*		
1. Voice and Diction: Speech 3 *or* 31	3	3
2. Acting: Speech 6 *or* 32	3	3
3. Public Speaking: Speech 11 *or* 34	3	3
4. Oral Interpretation: Speech 29 *or* 33	3	3
5. Group Discussion: Speech 120	3	0
6. Argumentation and Debate: Speech 121	3	3
7. Introduction to Broadcasting: Speech 140	3	0
8. Stage Craft: Speech 161	3	3
9. Play Directing: Speech 162	3	3
10. Speech Correction: Speech 250	3	3
II. *Electives*: Speech (unrestricted)	6	0

TEACHER-LIBRARIAN	*First Teaching Field*	*Other Teaching Field*
Minimum Requirements	27 hr.	24 hr.
I. *Required Courses*		
1. Using Books and Libraries: Lib. Sci. 1	3	3
2. Reference and Bibliography: Lib. Sci. 101	3	3
3. Children's Literature and Story Telling: Lib. Sci. 203	3	3

4. Book Selection for Adults: Lib. Sci. 225	3	
5. Book Selection for Adolescents: Lib. Sci. 205	3	3
6. Library Resources for Children and Young People: Lib. Sci. 230	3	3
7. Administration of the School Library: Lib. Sci. 207	3	3
8. Library Practice: Lib. Sci. 222	3	3
9. Cataloguing and Classification: Lib. Sci. 223	3	3

Speech and Hearing Therapy, Professional Certificate, Grades 1-12

	Hr.
Minimum Requirements*	42-45

I. *Required Courses*:

1. Introduction to Speech Correction: Speech 50, 156	6
2. Advanced Speech Correction: Speech 251	3
3. Anatomy and Physiology of Speech and Hearing Mechanisms: Speech 154	3
4. Phonetics: Speech 153	3
5. Stuttering and Other Organic Disorders: Speech 252, 253	6
6. Audiology: Speech 157, 158	6
7. Clinical Practice: Speech 277, 278†	6

II. *Electives in Speech, Education, and Psychology* 9-12

*The full sequence of courses required for certification in audiology is open only to graduate students. The courses as listed, open to undergraduates, fulfill the state certification requirements in speech correction.

†These courses meet the requirements of Ed. 128. A minimum of 200 clock hours of supervised direct experience with individuals with an appropriate variety of disorders of oral communication must be obtained to fulfill the credit requirements for these courses.

REQUIREMENTS FOR PROVISIONAL PROFESSIONAL CERTIFICATES, GRADES 7-12

Provisional Professional Certificates, Grades 7-12 (valid for 3 years for teaching in junior and/or senior high school) will be issued to applicants who meet the following requirements:

1. Graduation and recommendation by the Dean of the College of Education.
2. General Requirements: Fifteen hours of secondary education, including a course in student teaching, to be selected from the courses applicable for a first-class certificate. Three-fourths of the teaching subject-matter requirements of each division of each teaching field as designed for the Professional Certificate, Grade 7-12.

MASTER OF ARTS

Graduate Advisers

The Dean of the College assigns graduate students to advisers on the basis of interest as follows:

Audio-Visual Education: Mr. Huffman
College Teaching: Mr. Hofstetter, Mr. Bell, and Mr. Cook
Elementary Principals: Mr. Bell
Elementary Curriculum Instruction: Mrs. Cunningham, Mr. Katz, and Mr. McAvoy
Guidance and Counseling: Mr. Jarecke, Mr. Wagner

General Administration (Superintendents): Mr. Hofstetter, Mr. Harrah
Home Economics Education: Miss S. A. Brown
Industrial Arts: Mr. Brennan
Reading and Language Arts: Mr. Kennedy
Secondary Curriculum and Instruction: Mr. Cook, Mr. Bailey, and Mr. Gautier
Secondary Principals: Mr. Miller, Mr. Gautier (NCATE)
Specials: Mrs. Booth, Elementary; Mr. Bailey, Secondary
Supervision: Mr. Harrah
Special Education: Mrs. Neff
Teacher-Librarians: Mr. Bailey

REQUIREMENTS FOR ADMISSION TO CANDIDACY FOR THE MASTER'S DEGREE IN EDUCATION

Graduates students apply to the College of Education *Committee on Admissions* for admission to candidacy for the Master's Degree in Education. Applicants who have undergraduate averages the equivalent of 2.5 or better may be admitted to candidacy when they have met the following requirements:

1. A first-class teaching certificate or at least 20 semester hours of approved undergraduate credit in Education.
2. A maximum of 14-semester hours of graduate credit completed prior to admission to candidacy. At least 6 of these hours must be in Education and must have been taken in residence at West Virginia University. *Students can take no more than 8 hours in extension prior to their enrollment in residence at the University.*
3. A satisfactory score on preliminary examinations in general ability, written English, and such other areas as the *Committee on Admissions* may prescribe.
4. A minimum of one year's teaching experience for administrative programs, such as principals, superintendents, and supervisors.
5. A candidate for an administrative program must secure written approval from the adviser in order to be admitted to the program.

The *Committee on Admissions*, appointed by the Dean of the College of Education, will consider individually those applicants for admission to candidacy who do not meet these criteria.

A candidate conditionally admitted, who, upon the completion of a maximum of 15 semester hours of graduate work in residence, has not achieved a grade-point average of 2.5, shall be reclassified as a special graduate student, not eligible to be awarded a Master's Degree in Education.

Optional Routes Toward A Master's Degree in Education

A. Thirty semester hours, including 6 semester hours of research (Education 361, Thesis). Examination (oral, written, or both, at the discretion of the candidate's advisory committee.)

B. Thirty semester hours, including 3 semester hours of research (Education 360, Problem), selected in conference with the candidate's committee, directed by the adviser, with final approval by the committee and 27 semester hours of course work. Examination (oral, written, or both, at the discretion of the candidate's advisory committee.)

C. Thirty-six semester hours, including 15 semester hours of course work. Examination (oral, written, or both, at the discretion of the candidate's advisory committee.)

D. Program options D and E are offered in several programs.

SPECIAL REQUIREMENTS FOR THE MASTER'S DEGREE IN EDUCATION

1. No student may be awarded a Master's Degree in Education unless the student has a minimum grade-point average of "C" (2.0) on all work taken for graduate credit. (A grade of less than "C" does not carry credit toward a graduate degree, but will be counted in determining the grade-point average.)

2. No student will be permitted to repeat a required graduate course more than once.

3. Fifteen semester hours of approved courses in extension may apply toward the completion of degree requirements, if no work is transferred from another institution.

4. The maximum number of hours which may be used from extension courses is nine, if six semester hours of approved transfer credit from another institution is used toward the degree.

NOTE: All persons working toward administrative certificates in Education or who wish to add additional administrative certification shall be required to pass the screening examination required of all candidates for the Master's Degree in Education.

NOTE: A candidate who fails the final Master's Degree examination may, upon written consent of his advisory committee, be given a second examination not earlier than the following term or semester. A candidate who fails the second examination may, upon written request and with the unanimous consent of his committee, be given a third and final trial no earlier than one calendar year from the date of his second examination.

Graduate Professional Curricula

CURRICULUM FOR SUPERINTENDENTS†

Degree: Master of Arts

I. *Required Courses*	Program	A	B	C
Ed. 231		3	3	3
Ed. 271		3	3	3
Ed. 301		3	3	3
Ed. 335 or 336		3	3	3
Ed. 339		3	3	3
Ed. 340		0	3	3
Ed. 342		3	3	3
Ed. 346		3	3	3
Ed. 353 or 356		3	3	3
Ed. 360		0	3	0
Ed. 361		6	0	0
TOTAL		30	30	27
II. *Approved Electives*				
Ed. 270, 284, 306, 307, 308, 309, 326, 327, 340, 341, 343, 344, 345, 350, 367, 370 and/or academic courses approved by the adviser. (Academic deficiencies will have first consideration.)		0	0	9
TOTAL FOR MASTER'S DEGREE		30	30	36

Program A—Thesis required
Program B—Research Problem required
Program C—36 semester hour program

NOTE: For those who already hold a Master's Degree and who wish to qualify for the University's recommendation for a Superintendent's Certificate, the following courses will satisfy:

Required Courses ..... 19 Hr.

General Administration: Ed. 339, 340, 342, or 343 or 344 ... 6-9 Hr.
Elementary-school Administration: Ed. 335*, 356 ..... 3-6 Hr.
Secondary-school Administration: Ed. 336*, 346, 353 ..... 3-6 Hr.
Introduction to Educational Research: Ed. 301 ..... 3 Hr.

†The State Department of Education of West Virginia requires at least 5 years of experience in teaching, administration, or supervision, or any combination thereof, aggregating five years. In addition, a health certificate is required.

*Ed. 335 or 336 (not both) can be accepted.

Since most of the courses listed above have prerequisites, the consent of the instructor must be obtained before enrolling.

NOTE: Any administrative certificate issued by the State Department of Education is called a Professional Administrative Certificate.

CURRICULUM FOR HIGH SCHOOL PRINCIPALS

Degree: Master of Arts

		Options		
I. *Required Courses:* Program[1]	A	B	C	D
Ed. 271	3	3	3	3
Ed. 301	3	3	3	3
Ed. 327	3	3	3	3
Ed. 328	0	0	0	2
Ed. 336 or 346	3	3	3	3
Ed. 338	0	0	0	2
Ed. 339	3	3	3	3
Ed. 353	3	3	3	3
Ed. 360	0	3	0	0
Ed. 361	6	0	0	0
TOTAL	24	21	18	22
II. *Approved Education Electives*[2]				
Ed. 259, 270, 284, 285, 322, 331, 341, 348, 349, 371, 373, 385	6	6	6	5
III. *Approved Academic Courses*[3]	0	3	12	9
TOTAL HOURS FOR MASTER'S DEGREE	30	30	36	36

[1]A—Thesis required
B—Research problem required
C—36 semester hour program
D—Fulfills NCATE requirements

[2]Appropriate graduate courses related to the high school principalship may be submitted in the approved elective area with the adviser's consent.

[3]Academic courses approved by the adviser should be selected in two or more high-school teaching fields.

General requirements for the West Virginia High School Principal's Certificate are: (1) Graduation from an accredited college or university and qualifications for a Professional Certificate, valid in Grades 7-12; (2) three years of secondary-school teaching experience in Grades 7-12 (not in a one-room school); (3) a health certificate; and (4) acceptable score on the Master's screening examination.

Each of the options meets the qualifications for a West Virginia High School Principal's Certificate. Option D meets the qualifications needed for NCATE certification.

Those already holding a Master's Degree who desire to qualify for this certificate, will be required to have the courses listed in Sections I and II.

CURRICULUM FOR ELEMENTARY SCHOOL PRINCIPALS[1]

Degree: Master of Arts

I. *Required Courses*	*Options** A[2]	B[2]	C[2]	D[3]
Ed. 301	3	3	3	3
Ed. 306 or 307	3	3	3	3
Ed. 308 or 309	3	3	3	3
Ed. 315	0	0	0	2
Ed. 325	0	0	0	2
Ed. 326	0	0	0	2
Ed. 331 or 335	3	3	3	3
Ed. 339	3	3	3	3
Ed. 346	3	3	3	3
Ed. 356	3	3	3	3
Ed. 360	0	3	0	0
Ed. 361	6	0	0	0
TOTAL	27	24	21	27
II. *Approved Education Electives*				
Ed. 202, 221, 223, 259, 270, 271, 275, 284, 304, 305, 306, 307, 308, 309, 313, 315, 325, 326, 331, 335, 344, 348, 349, 366, 370, 372, 380, 385.	3	6	5	0
III. *Academic Courses Approved by Adviser*	0	0	10	9
TOTAL HOURS FOR MASTER'S DEGREE	30	30	36	36

*A—Thesis required
B—Educational Research Problem required
C—36 semester hour program
D—Fulfills NCATE requirements

[1]General requirements for the elementary-school principal's certificate are: (1) acceptable score on the Master's screening examination; (2) graduation from an accredited college or university and qualifications for Professional Certificate, valid Grades 1-9; (3) three years of elementary-school teaching experience in Grades 1-8; and (4) a health certificate. Since most of the courses in this curriculum have prerequisites, the consent of the adviser and the instructors must be obtained prior to enrollment.

[2]Completion of programs under this option meets requirements for the elementary-school principal's certificate, but does **not** meet NCATE requirements.

[3]Completion of program under this option fulfills requirements for NCATE certificate. Approval of adviser must be obtained before this program can be pursued.

CURRICULUM FOR SUPERVISORS OF INSTRUCTION

Degree: Master of Arts

		NCATE			Non-NCATE		
I. *Required Courses*	Program	A	B	C	A[1]	B[1]	C[1]
Ed. 271		3	3	3	3	3	3
Ed. 301		3	3	3	3	3	3
Ed. 331			3	3	3	3	3
Ed. 339				3			3
Ed. 346		3	3	3	3	3	3
Ed. 360			3			3	
Ed. 361		6			6		

II. *NCATE Required Field Courses*						
Ed. 380	2	2	2			
Ed. 381	2	2	2			
Ed. 382	2	2	2			
Ed. 383	2	2	2			
III. *NCATE Required Courses for Problems in Teaching*						
Ed. 306 or 367	3	3	3			
Ed. 309 or 366	3	3	3			
IV. *Non-NCATE Required Courses for Problems in Teaching (General or Special)*						
Ed. 306 or 367				3	3	3
Ed. 308				3	3	3
Ed. 308				3	3	3
Ed. 309 or 366				3	3	3
	29	29	29	30	27	27
Approved Electives						
Ed. 259, 270, 331, 339, 348, and/or other courses approved by the adviser	2	2	7		3	9
REQUIRED HOURS FOR MASTER'S DEGREE	30	30	36	30	30	36

A and A[1]—Thesis required
B and B[1]—Research problem required
C and C[1]—36 semester hour program

NCATE Program meets requirements for certification in West Virginia.
Non-NCATE Program does not meet the requirements for certification in West Virginia.

CURRICULUM FOR COUNSELORS

Degree: Master of Arts

I. *Required Courses* Program[1]	A	B	C	D
Ed. 301	3	3	3	0
Ed. 373*	3	3	3	3
Ed. 374*	2	2	2	2
Ed. 375*	3	3	3	3
Ed. 376*	3	3	3	3
Ed. 377	3	3	3	0
Ed. 378*	2	2	2	2
Ed. 360	0	3	0	0
Ed. 361	6	0	0	0
TOTAL	25	22	19	13

[1]A—Thesis required
B—Research problem required
C—36 semester-hour program for counselors
D—36 semester-hour program for teacher-counselors

*Completion of 13 semester hours as indicated by starred courses will contribute to endorsement as a teacher-counselor. For endorsement as a teacher-counselor it is necessary to hold a Professional Certificate.

If a Master's Degree has been earned in some other field, certification as a Counselor may be procured by having 25 semester hours' credit, 19 in the required list and six from the electives.

II. *Approved Electives*	5	8	17	23
Ed. 270, 271, 301, 309, 324, 360, 361, 368, 369, 371, 372.				
Psych. 205, 206, 218, 229, 233, 236, 238, 310, 311, 324, 350, 351.				
Soc. 210, 211, 233, 234, 244.				
Speech 275.				
TOTAL FOR MASTER'S DEGREE	30	30	36	36

Completion of this curriculum fulfills the scholastic requirements in West Virginia for a Counselor's Certificate. Other requirements are: (1) a Professional Certificate at the level at which the counseling is to be done; (2) 2 years of successful teaching experience at the level at which the counseling is to be done; and (3) a health certificate.

CURRICULUM FOR SECONDARY-SCHOOL CLASSROOM TEACHERS†

Degree: Master of Arts

I. *Graduate Courses in Education* . . . . . 12-18 Hr.
Required Courses in Education . . . . . 6 Hr.

Programs:[1]	A	B	C	D
Ed. 336	3	3	3	3
Ed. 331 or 373	3	3	3	3
Ed. 271	3	3	0	0
Ed. 301	3	3	0	0
Ed. 360	0	3	0	0
Ed. 361	6	0	0	0
Ed. 397	0	0	0	3
TOTAL	18	15	6	9

II. *Approved Electives in Education* . . . . . 6 Hr. (Min.)
Ed. 221, 251, 259, 262, 271, 274, 275, 284, 285, 301, 304, 305, 309, 322, 331, 337, 338,* 339, 346, 348, 360, 361, 364, 366, 367, 370, 371, 373, 375, 380,* 385, 395, 397.

III. *Graduate Courses in one of the candidate's certified fields.* 12-18 Hr.

IV.** *Graduate Courses in another of the candidate's teaching fields.* . . . . . 6 Hr. (Min.)

V. *Free electives (non-Education)* . . . . . 0- 6 Hr.

Alternate Program for II, III, IV

I. *Graduate Courses in one of the candidate's certified teaching fields* . . . . . 18-24 Hr.

II. *Free electives (non-Education)* . . . . . 0- 6 Hr.

TOTAL FOR MASTER'S DEGREE . . . . . 30-36 Hr.

†NOTE: In some programs listed on pages 283 to 286 a combination of undergraduate courses and courses listed in a graduate program is necessary to meet certification requirements.

[1]A—Thesis required
B—Research problem required
C—36 semester hour program
D—Concentration in reading

*May be taken as internship courses.
**This provision does not apply to candidate pursuing Programs A or B.

CURRICULUM FOR INDUSTRIAL ARTS TEACHERS*

Degree: Master of Arts

I. *Required Courses*	Option A	Option B	Option C
Ed. 271	3	3	0
Ed. 301	3	3	3
Ed. 303	3	3	3
Ed. 310	3	3	3
Ed. 311	3	3	3
Ed. 360	0	3	0
Ed. 361	6	0	0
Ed. 365	3	3	3
TOTAL	24	21	15
II. *Approved Electives in Education*	6	9	21
(Students electing Option C should maintain a close balance in total hours between professional and academic courses.)			
Ed. 204(IA), 221, 238(IA), 240(IA), 243(IA), 244(IA), 246(IA), 248(IA), 249(IA), 250(IA), 251, 270, 271, 272, 275, 284, 285, 301, 319, 320, 321, 322, 324, 331, 336, 338, 339, 346, 348, 351, 353, 364, 368, 369, 370, 371, 372, 374, 375, 385, 395, 396, 397, 398, 399.			
TOTAL FOR MASTER'S DEGREE	30	30	36

CURRICULUM FOR AUDIO-VISUAL EDUCATION*

Degree: Master of Arts

I. *Required Courses*	Program[1] A	B	C
Ed. 221	3	3	3
Ed. 251	2	2	2
Ed. 322	2	2	2
Ed. 351	3	3	3
Ed. 346	3	3	3
Ed. 301	3	3	3
Ed. 360	0	3	0
Ed. 361	6	0	0
TOTAL	22	19	13
II. *Approved Electives*			
Ed. 246, 270, 271, 315, 335, or 336, 338, 339, 341, 380-383, 395-398	8	11	23
Journalism 302			
Speech 242, 243, 244			
TOTAL FOR MASTER'S DEGREE	30	30	36

[1]A—Thesis required
B—Research Problem required
C—36 semester hour program

*See dagger footnote on page 283.

CURRICULUM FOR HOME ECONOMICS EDUCATION*

Degree: Master of Science

I.	*Required graduate courses in Education*	10-20 Hr.
II.	*Required graduate courses in Home Economics*	10-20 Hr.
III.	*Required graduate courses in tributary fields*	0-10 Hr.
	TOTAL FOR MASTER'S DEGREE	30-36 Hr.

*See dagger footnote on page 283.

CURRICULUM FOR JUNIOR HIGH-SCHOOL CLASSROOM TEACHERS†

Degree: Master of Arts

	Program	A	B	C
I.	*Required Courses:*			
	Ed. 285	2	2	2
	Ed. 301	3	3	3
	Ed. 336	3	3	3
	Ed. 360	0	3	0
	Ed. 361	6	0	0
		14	11	8
II.	*Graduate Courses in Student's Certified Field or Fields:*	10	10	10-18
III.	*Approved Electives:* Ed. 221, 259, 270, 271, 275,* 284, 301, 304,* 305, 306, 307, 308, 309, 331, 348, 360, 361, 373.*	6	9	10-18
	TOTALS	30	30	36

*Recommended Electives.
*See dagger footnote on page 283.

CURRICULUM FOR ELEMENTARY SCHOOL CLASSROOM TEACHERS*

Degree: Master of Arts

	Program[1]	A	B	C	D	E
I.	*Required Courses:*					
	Ed. 231	3	3	3	3	3
	Ed. 271	3	3	3	3	3
	Ed. 301	3	3	0	3	3
	Ed. 306	3	3	3	0	0
	Ed. 307	3	3	3	0	0
	Ed. 308	3	3	3	3	3
	Ed. 309	3	3	3	3	3
	Ed. 335	3	3	3	0	0
	Ed. 360	0	3	0	3	3
	Ed. 361	6	0	0	0	0
	TOTAL	30	27	21	18	18

[1]A—Thesis required
B—Research problem required
C—36 semester hour program
D—Concentration in Reading
E—Concentration in Elementary Mathematics
*See dagger footnote on page 283.

II. *Approved Electives*:	0	3	15	12	12
Ed. 202, 221, 223, 233, Astronomy 216, Mathematics 261, Mathematics 262, Ed. 270, 274, 285, 301, 304, 305, 306, 307, 347 (Reading for the Mentally Retarded), 313, 315, 316, 317, 335, 346, 342, 348, 366, 370, 371, 372, 375, 380, 368, 385, or academic courses approved by the adviser. (Academic deficiencies will have first consideration.)					
TOTAL FOR MASTER'S DEGREE ...	30	30	36	30	30

CURRICULUM FOR TEACHER-LIBRARIANS*

(GRADUATE OPTION B ONLY)

Degree: *Master of Arts in Education*

I. *Graduate Courses in Education* ..... 12 Hr.

A. Required Courses in Education ..... 6 Hr.

Ed. 301
Ed. 360 (Library Science)

B. Electives in Education ..... 6 Hr. (Min.)

Ed. 221, 270, 271, 322, 331, 339, 373, 385.

II. *Graduate Courses in Library Science* ..... 12-18 Hr.

At least 6 hours must be in the 300 series.

III. *Electives* ..... 0- 6 Hr.

TOTAL FOR MASTER'S DEGREE ..... 30 Hr.

*See dagger footnote on page 283.

CURRICULUM FOR CLASSROOM TEACHERS IN SPECIAL EDUCATION*

Degree: *Master of Arts*

I. *Required Courses*: ..... Program[1]	A	B	C
Ed. 223	3	3	3
Ed. 250	3	3	3
Ed. 301	3	3	0
Ed. 323	3	3	3
Ed. 347	3	3	3
Ed. 360	0	3	0
Ed. 361	6	0	0
Ed. 368	3	3	3
Ed. 369	3	3	3
Ed. 371	0	0	3
Ed. 375	3	3	3
Psych. 229	0	0	3
Psych. 236	0	3	3
TOTAL	30	30	30

[1]A—Thesis required
B—Research problem required
C—36 semester hour program

*See dagger footnote on page 283.

II. *Approved Electives*	0	0	6
Ed. 221, 270, 271, 301, 304, 308, 309, 313, 317, 324, 331, 335, 336, 348, 373, 376			
Psych. 218, 238			
Speech 250			
TOTAL FOR MASTER'S DEGREE	30	30	36

CERTIFICATE OF ADVANCED STUDY IN EDUCATION

This program is designed to prepare school and related personnel who wish professional training beyond the Master's Degree. Candidates for this Certificate may choose from among the following areas of study for their specialization: (a) Administration, (b) Supervision, (c) Reading, (d) Special Education, (e) Curriculum, (f) College Teaching, (g) Physical Education, and (h) other approved areas. Persons interested in this certificate should consult the Dean of the College of Education.

GRADUATE WORK

For complete information concerning graduate work in the College of Education, see the *Announcements* of the College of Education and the *Announcements* of the Graduate School. See also the bulletin *Teacher Training Programs—Requirements for Certification.*

COURSES OF INSTRUCTION*

No courses in Education except Ed. 100, 102 (IA), 103 (IA), 104 (IA), 105, 106, 107 (IA), 108 (IA), and 112 (IA) are open to sophomores. The following courses are required of teachers for recommendation for a Professional Certificate, Grades 7-12: Ed. 100, 105, 106, 120, 124, 150-170, and enough additional hours chosen from the following approved electives to meet the minimum requirements of 21 hours in Education: Ed. 109, 150-170 in a second teaching field, 221, 259, 262, 270, 271, 275, 276, 277, 284, and 285. The following courses are required of teachers for recommendation for a Professional Certificate, Grades 1-9: Ed. 100, 105, 106, 141, 142, 143, 144, 145, and 146.

Undergraduate Division

100. ORIENTATION AND SELECTION. I, II, S. 1 hr. Open to sophomores and above. Acquaints students with selective processes necessary for admission to the College of Education or the student teaching program and assists the teacher trainee in self evaluation through counseling and testing. Mr. Wagner and Staff

102. HAND WOODWORKING (IA). I. 2 hr. Design and construction of small projects suitable for secondary schools involving hand woodworking skills, tools, materials and processes. Open to lower division students. Mr. Brennan

103. MACHINE WOODWORKING (IA). II. 2 hr. Development of skill in use of the common power woodworking machines. Open to lower division students. Mr. Brennan

104. COLD METALS (IA). I. 2 hr. Layout, planning and construction in sheet metal and ornamental iron. Open to lower division students. Mr. Brennan

105. HUMAN GROWTH AND DEVELOPMENT—INTRODUCTION. I, II, S. 3 hr. Open to sophomores or above. Emphasis upon competencies in understanding and applying principles involved in the growth and development of children and youth. Mr. McAvoy

*Ed. 100 and Ed. 105 are prerequisite to all other courses in Education.

106. Human Growth and Development—Principles of Learning. I, II, S. 3 hr. PR: Ed. 100, 105. Continuation of Ed. 105 with special attention to the principles of learning. Open to sophomores or above.
Mr. McAvoy and Mr. Orlandi

107. General Shop 1 (IA). I. 3 hr. Basic course in the practice and techniques involved in the areas of printing, bench-metal work, forging, foundry, and project planning. General shop organization emphasized. Mr. Ault

108. General Shop 2 (IA). II. 3 hr. PR: Ed. 107 (IA). Continuation of Ed. 107 (IA). Emphasis on planning and project construction in electricity, metals, including welding (gas and arc), metal lathe turning, spinning, cold forming, and wood patternmaking. Mr. Ault

109. History and Philosophy of the Secondary School. I, II. 2 hr. PR: Ed. 105, 106. Significant historical developments giving rise to the modern secondary school; the nature and function of the secondary school in an emerging new world order; influence on curriculum and instruction.
Mr. Bell and Mr. Gautier

110. Maintenance and Construction of Industrial Arts Equipment (IA). I, II, S. 2 hr. PR: Ed. 102 (IA), 104 (IA), and consent. A study of school shop maintenance problems and their solution, including the construction of certain types of equipment. Mr. Brennan and Mr. Ault

112. Hot Metals (IA). II. 2 hr. Foundry practice, forging, gas and electric welding, construction of patterns and jigs. Open to lower division students.
Mr. Ault

115. Student Teaching in Elementary-School Music. I, II. 3 hr. Observation and practice of teaching music to pupils in grades 1 through 6. Open to seniors who have completed 27 semester hours in music and 7 semester hours in Education with a grade-point average of 2.0 (C) in each and a overall grade-point average of 2.0 (C). Mr. Brown and Mrs. Glasscock

120. Principles of Teaching in Secondary Schools. I, II, S. 4 hr. PR: Open only to those who qualify for the student teaching block. Mr. Miller

121. Industrial Arts Crafts (IA). I. 2 hr. Construction activities suitable for secondary schools in such media as leather, plastics, and ceramics.
Mr. Brennan

124. Student Teaching. I, II, S. 4-6 hr. PR: Ed. 100, 105, and 106. Open only to seniors and graduate students, regularly enrolled in the University, who meet the following requirements:

1. Completion of 75 per cent of the hours required in each of two teaching fields and completion of Ed. 100, 105 and 106, with a minimum overall grade-point average of 2.0 (C) and a minimum grade-point average of 2.0 (C) in each teaching field and in Education.

2. An applicant for student teaching must submit positive evidence that he (or she) meets the requirements of physical condition and emotional stability necessary for the performance of the duties of a teacher. Such evidence must come from the University Health Service on a form used by the College of Education.

3. This course must be taken concurrently with Ed. 120 and the appropriate course of Ed. 150-170, unless exceptions have previously been made with the Director of Secondary Student Teaching. A period of 3 hours daily must be reserved for this and simultaneous courses for purposes of observation, discussion, and planning.

4. The second Monday in each calendar month, 7 to 9 p.m., must be reserved for teachers' meetings.

5. Because two-thirds of the program of the University High School is in the forenoon, two-thirds of the applicants must schedule this course in

the morning, reserving three hours daily without interruption. Admission is by application made early in the preceding semester to the Chairman of Undergraduate Secondary Education.

6. The adviser is responsible for furnishing a check of the student's record to determine eligibility.

7. Students with no teaching experience are expected to take this course during the academic year. Mr. Miller and U.H.S. Staff

125. Student Teaching in Secondary-School Music. I, II. 4 hr. PR: Same requirements as Ed. 124 except in hour's credit needed.
Mr. Miller and U.H.S. Staff

127. Materials and Methods in Public-School Speech and Hearing Therapy. I, II, S. 2-4 hr. PR: Consent. Includes experience in Grades 1 to 12. Three semester hours of this course may be earned by registering in Speech 276.
Mr. Neff

128. Clinical Practices in Public-School Speech and Hearing Therapy. I, II, S. 2-8 hr. Consent. Includes experience in Grades 1 to 12. This course meets the requirements of Speech 277 and 278. Mr. Neff

130. Materials and Methods in Elementary-School Music. I, II. 2 hr. (To be taken concurrently with Ed. 115.) Mrs. Glasscock

131. General Electricity 1. (IA). I. 2 hr. A study of basic electrical theory and its application in secondary-school teaching. Laboratory work involves the construction of electrical projects suitable for developing an understanding of electrical theory. Mr. Ault

132. General Electricity 2. (IA). II. 2 hr. PR: Ed. 131 (IA). Continuation of Ed. 131 (IA) with an introduction to radio, involving crystals, transistors, and tubes. Mr. Ault

141. Psychology and Management of the Elementary School. I, II, S. 3 hr. PR: Ed. 100 and 105 and enrollment in the College of Education. Introduction to elementary education including observation and participation in public schools. Principles of elementary education will be related to principles of learning in Education 106. An analysis of professional problems and procedures will be an integral part of the course. (To be taken concurrently with Ed. 106, 142, and 143.) Mrs. Cunningham

142. Language Arts in the Elementary School. I, II, S. 3 hr. PR: Ed. 100, 105, and enrollment in the elementary undergraduate program. This course covers instructional practices in all phases of the language arts. (To be taken concurrently with Ed. 106, 141, and 143.) Mr. Kennedy

143. Arithmetic in the Elementary School. I, II, S. 2 hr. PR: Math. 6, Ed. 100 and 105 and enrollment in the elementary undergraduate program. Materials and methods with emphasis on the use of problem situations and "discovery" procedures for the development of mathematical ideas appropriate for the elementary school. (To be taken concurrently with Ed. 106, 141, and 142.) Mrs. Cunningham

144. Social Studies in the Elementary School. I, II, S. 2 hr. PR: Ed. 100, 105, 106, and enrollment in the elementary undergraduate program. A study of modern practices in the teaching of social studies. Emphasis on the principles and techniques underlying the community-oriented social processes, foreign culture and geography, and history are developed. (To be taken concurrently with Ed. 145 and 146.) Mrs. Glasscock

145. Science in the Elementary School. I, II, S. 2 hr. PR: Ed. 100, 105, 106, 141, 142, 143 and enrollment in the elementary undergraduate program. A study of modern practices in the teaching of science. (To be taken concurrently with Ed. 144 and 146). Mr. Katz

146. Student Teaching in the Elementary School. I, II, S. 6 hr. PR: Ed. 100, 105, 106, 141, 142, 143 and enrollment in the elementary undergraduate program; a minimum grade-point average of "C" (1) in the non-Education courses and (2) in Education courses; and senior standing. An applicant for student teaching must submit positive evidence that he or she meets the requirements of physical condition and emotional stability necessary for the performance of the duties of a teacher. Such evidence shall be provided by the University Health Service on a form used by the College of Education. Ed. 144 and 145 must be taken concurrently with student teaching. Admission is by application made early in the preceding semester to the Chairman of Undergraduate Elementary Education. Mr. Katz and Staff

150-170. Materials and Methods of High-School Teaching. I, II, S. 2 hr. PR: Consent. Special methods in the various secondary-school teaching fields. For West Virginia certification these courses are an integral part of Ed. 124. May also be chosen as a 2-hour elective by students who are registered for student teaching in other fields.

The various sections of this course, with instructors, follow:

150. Science. 2 hr. Mr. Caruso

152. Physical Education. 2 hr. Mrs. Brock and Mr. Fizer

153. Foreign Languages. 2 hr. Miss Brochick

155. Library Science. 2 hr. Mrs. Callahan

160. Agriculture. 3 hr. Mr. Butler and Mr. Bryant

161. English and Speech. 2 hr. Miss Engle, Mrs. Morgan, and Miss Woofter

163. Home Economics. 2 hr. Miss Cook

164. Industrial Arts. 2 hr. Mr. Baker

165. Mathematics. 2 hr. Mrs. Dorsey

167. Social Studies. 2 hr. Mrs. Semon

168. Art. 2 hr. Mr. Madia

169. Music. 2 hr. Mr. Wood

170. Commerce. 2 hr. Mrs. Cunningham

173. Technical Drawing 1 (IA). I. 2 hr. Fundamentals of mechanical drawing with emphasis on establishment of good techniques; nomenclature, conventions, and correct applications. Mr. Ault

174. Technical Drawing 2 (IA). II. 2 hr. PR: Ed. 173 (IA). Continuation of Ed. 173 (IA). Detail and assembly drawing, sketching, tracings, and methods of duplication. Mr. Ault

180. Industrial Arts Graphics (IA). I. 2 hr. Familiarization with methods of graphic reproduction including linoleum block, letterpress, silk screen, binding and offset press. Mr. Brennan

181. Materials and Methods of Industry. I. 2 hr. Introduction of related information in secondary school industrial arts laboratories relative to mass production, automation, and modern technology. Experiments with industrial products. Mr. Ault and Mr. Brennan

194. Organization of Industrial Arts. II. 2 hr. Comparative analysis of the objectives of general and industrial arts education; industrial arts content;

study of the problems involved in organizing and administering industrial arts courses in unit and general shops. Mr. Brennan and Mr. Ault

202. Early Childhood Education. 2 hr. PR: Consent. Application of principles of psychology to early childhood education. Mrs. Cunningham

204. Advanced Woodworking, Construction, and Finishing (IA). II, S. 3 hr. PR: Ed. 102 (IA), 103 (IA), or equiv. Selection of advanced projects, analysis of construction, planning, and finishing, application of machine tools. Mr. Brennan

221. Audio-Visual Resources for Instruction. I, II, S. 3 hr. A survey is made of the many types of materials available for teaching. Multisensory techniques, sources of materials, and practical classroom utilization are considered. One hour laboratory period per week is arranged. Mr. Huffman

223. Student Teaching Clinical Experience in Elementary, Secondary, Reading, Mathematics, and Special Education. I, II, S. 2-4 hr. PR: Consent. This is an advanced course in student teaching, stressing clinical procedures in classroom learning problems, industrial arts therapy, and other related areas. Mr. Miller, Mr. Katz, and Staff

238. Design in Industrial Education (IA). I, S. 3 hr. PR: Consent. Industrial education design; architectural drawing and model building. Emphasis on application of design components at the secondary school level. Mr. Madia

240-250. These courses are designed to prepare versatile teachers of industrial arts and to meet State certification requirements. The abbreviated introduction to specific crafts through these courses is intended to provide broad rather than specialized experience and to prepare the teacher to teach the fundamentals of crafts rather than to attain vocational competence. Prospective teachers should elect, from these courses, those which will supplement their previous training in organizing and directing the industrial arts program.

240. Art Metal and Jewelry (IA). I, S. 3 hr. PR: Ed. 104 (IA) or equiv. Creative design and construction of art metal and jewelry involving the utilization of sheet, bar and wire stock. Development of units suitable for the secondary school level is stressed. Mr. Madia

242. Upholstery and Finishing (IA). I, S. 3 hr. PR: Ed. 102 (IA), 103 (IA) or equivalent and consent. Design and construction of upholstery units, reupholstery, finishing and refinishing. Construction of teaching units in these areas. Mr. Madia

243. Advanced Ceramics (IA). II. 3 hr. PR: Ed. 121 (IA) or consent. Design in ceramics, construction of projects involving mold work, potter's wheel and hand form methods. Experimentation with glazes including glaze composition. Develpoment of suitable teaching aids involving ceramics. Mr. Brennan

244. Advanced Industrial Arts Crafts (IA). II, S. 3 hr. PR: Ed. 121 (IA). Experiments with crafts media in depth in the areas of plastics and leather. Development of suitable teaching units involving crafts materials. Mr. Brennan

246. Advanced Industrial Arts Graphics (IA). II, S. 3 hr. PR: Ed. 180 (IA) or equiv. Concentration in depth in one or more of the graphic arts media. Emphasis on offset methods of reproduction. Mr. Brennan

248. Advanced Electricity (IA). II, S. 2 hr. PR: Ed. 131 (IA) or equiv. A study of the technical phases of electricity with emphasis on planning shop courses, shop equipment and layout, and development of instructional aids. Mr. Ault

249. Sheet Metal Pattern Development (IA). II, S. 3 hr. Layout problems involving parallel, radial and triangulation methods. Construction of in-instructional units utilizing these principles. Mr. Ault

250. Industrial Arts in Special Education (IA). II, S. 3 hr. Experimentation with industrial arts crafts suitable for instruction in special education classes. Discussion of factors involved in selection and manipulation of such media as leather, plastics, ceramics, wood, and metal. Mr. Brennan

251. Production of Audio-Visual Materials. I, S. 2 hr. PR: Ed. 221. Techniques of making audio-visual materials for use in teaching and school public relations programs are demonstrated. Individual projects of planning and producing materials are carried out by the student. Mr. Huffman

259. The Music Education Program. S. 3 hr. PR or parallel: Ed. 124 or consent. Organization and administration of the complete Music Education program for grades 1 through 12. Mr. Brown

262. Vocational Home Economics in Secondary Schools. 3 hr. PR or parallel: Ed: 120, 124, 163; 25 hr. in Home Economics. Primarily for seniors and teachers of home economics. Miss Brown

270. Special Problems and Workshops. I, II, S. 2-4 hr. PR: 14 hr. in Education. To take care of credits for special workshops and short intensive unit courses on methods, supervision, and other special topics. Maximum of 8 semester hours may be applied toward the Master's Degree, of which no more than 6 semester hours shall be in Extension. Staff

271. Educational Measurement. I, II, S. 3 hr. PR: Consent. Background for educational measurement, the nature of evaluation, measuring and predicting pupil progress. Statistics includes measures of central tendency, percentiles, variability, and simple correlation. First course in statistics and research. Mr. Bailey and Mr. Gautier

272. Internship in Industrial Arts Therapy (IA). I, II, S. 8 hr. Internship in a clinical setting providing individualized instruction in the teaching techniques of industrial arts and therapeutic practices in rehabilitation of the handicapped. Mr. Brennan

274. Workshop: Economic Education. S. 3 hr. A workshop for principals, teachers, and supervisors with emphasis on the economic structure of our society and methods of integrating economics into the school program. Sponsored jointly by the College of Education and the College of Commerce. Mr. Lee

275. Curriculum Principles and Patterns in General Education. II. 2 hr. PR: 6 hours undergraduate education and senior rank. Major emphasis on principles, philosophy, and concepts of general education in secondary schools; means and ends in general education: core, subject matter, integrated studies, broad fields, activity. Mr. Cook

276. Teaching Young and Adult Farmer Classes. I, S. 2 hr. PR: Ed. 100, 105, 106. Participation in conducting young and adult farmer classes and school-community food preservation centers; organization, course of study, and methods of teaching and supervision, and young farmers' association. Mr. Butler

277. Organizing and Directing Supervised Farming Programs. II, S. 2 hr. PR: Ed. 160 or consent. Planning programs of supervised farming, supervising and evaluating such programs for all-day students, young farmers, and adult farmers. Mr. Butler

284. Pupil-Personnel Administration. I, II, S. 2 hr. PR: Ed. 100, 105, 106. Pupil accounting, guidance, extracurricular activities, and control. Open only to senior students and graduates. Mr. Harrah

285. The Junior High School. I, II. 2 hr. PR: Ed. 100, 105, 106, and consent. Development, philosophy, program, and practices of the junior high school. Mr. Gautier

Graduate Division

301. Introduction to Educational Research. I, II, S. 3 hr. PR: Ed. 271 or 372. Required of all candidates for the administrative, supervisory, Options A and B for the Master's Degree and several other programs. Methods, techniques, statistical measures, interpretations, and reporting of research. Mr. Hofstetter and Mr. Ikenberry

303. History of Industrial Education. I, S. 3 hr. Survey of development of industrial education in Europe and America to 1917. Research on modern development since 1917 including contributions of contemporary leaders. Mr. Brennan

304. Corrective Techniques in Reading Instruction. II, S. 3 hr. PR: Ed. 309. A basic course in corrective reading for classroom teachers. Special emphasis on the correction of reading difficulties by the classroom teacher with equipment and materials available to the average classroom. Mr. Kennedy

305. Survey of Major Issues in Reading. II, S. 2 hr. PR: Ed. 309. An advanced course in the major problems confronting the teacher or supervisor of reading instruction. Essentially a research course in which each student will have the opportunity to complete an individual problem in an area of special interest. Mr. Kennedy

306. Social Studies in the Elementary School. I, II, S. 3 hr. Comprehensive consideration of objectives, content, methods, including unit procedures; materials including objects, models, exhibits, and museum items as well as textbooks, collateral reading, maps, and graphs; and means of evaluating social growth and development. Mr. Bell and Mr. Gautier

307. Science in the Elementary School. I, S. 3 hr. PR: 20 hr. of undergraduate credit in elementary education, or consent. An analysis of methods, curriculum patterns, and trends in elementary school science. Attention is given to the understanding and development of scientific attitudes appropriate at the elementary school level. Mr. Katz

308. Mathematics in the Elementary School. 3 hr. PR: 10 hr. of undergraduate credit in elementary education or consent. Materials and methods of instruction for modern mathematics programs. Mrs. Cunningham

309. Foundations of Reading Instruction. I, S. 3 hr. A basic course in teaching reading, grades 1-12. It is planned to give students who have little or no background in reading an opportunity to study the reading process and to learn how to apply effective techniques and methods to classroom teaching of reading. Mr. Kennedy

310. School Shop Planning. I, S. 3 hr. Selection, purchase, arrangement, installation and use of equipment for all instructional levels and types of school shop laboratories. Construction of 3-D scale models of typical industrial education laboratory facilities. Mr. Ault

311. School Shop Safety Programs. II, S. 3 hr. Consideration of factors involved in school shop accidents; safety measures appropriate to schools and industry; theory of tort liability involving industrial education teachers. Mr. Ault

313. Elementary-School Guidance. I, II, S. 2 hr. PR: Consent. Practical application of the principles of guidance to the elementary school. Mr. Jarecke

315. Current Practices in Elementary Education. I, II, S. 2 hr. PR: Consent. Critical analysis of modern techniques and practices in the elementary school. Staff

316. Corrective Techniques in Mathematics Education. 3 hr. PR: Ed. 308. Materials and methods used in diagnosis and remediation of learning difficulties in mathematics. Mrs. Cunningham

317. Survey of Major Issues in Mathematics Education. 3 hr. PR: Ed. 308 and 316. Individual and group research on selected topics in mathematics education. Mrs. Cunningham

318. Planning Programs and Courses for Vocational Agriculture Departments. I, S. 2 hr. PR: Ed. 124. Gathering data, studying the farming problems of all-day students, young farmers, and adult farmers, and planning the total program for the department. Mr. Butler

319. Special Problems in Teaching General Shop. S. 3 hr. PR: Ed. 107 (IA) or equivalent. Problems peculiar to teaching industrial arts in the general shop. Mr. Ault

320, 321. Special Topics in Industrial Arts. I, II, S. 2-3 hr. each. PR: Consent. For graduate students in industrial arts. Special projects of improvement in phases needing special attention. Mr. Ault and Mr. Brennan

322. Organizing Audio-Visual Programs. 2 hr. PR: Ed. 221. Audio-visual techniques with emphasis on selection and utilization of materials, audio-visual centers, inservice programs, budgetary planning, and curricular implementation. Mr. Huffman

323. Mathematics for the Mentally Retarded. 3 hr. PR: Consent. Materials and methods for teaching mathematics to the mentally retarded child. Mrs. Cunningham

324. Administration of Individual Intelligence Tests. I, II, S. 4 hr. Techniques in administering, scoring, and interpreting individual mental ability tests. Mr. Jarecke

325. Practice in Administration in Elementary Schools. I, II. 2 hr. PR: Consent. Practice in leadership pertaining to elementary school organization and administration according to the needs of the school and/or school system. Mr. Bell

326. Practice in Elementary-School Supervision. S. 2 hr. PR: 6 graduate hours of elementary education, or consent. Observing and practicing major activities of the supervisor in work with pupils and teachers. To be taken late in student's candidacy. Mr. Harrah

327. Demonstration and Practice in the Supervision of Secondary-School Instruction. S. 3 hr. PR: Consent. Observation and practice of approved methods and techniques in classroom supervision of instruction. To be taken late in student's candidacy. Mr. Harrah and Mr. Miller

328. Practice Administration in the Secondary School. I, II. 2 hr. PR: Consent. Internship study of school organization and administration. Mr. Harrah and Mr. Miller

331. Philosophy of Education. I, II, S. 3 hr. A study of educational aims, values, and criteria of education in a democracy. Stresses different systems of educational philosophies, the nature of thinking applied to methods, and subject matter. Mr. Bell

335. The Elementary-School Curriculum. I, S. 3 hr. PR: 20 hr. of undergraduate credit in elementary education, or consent. An analysis of curriculum designs in elementary education with emphasis on methods and techniques of development. Mr. Katz

336. The Secondary-School Curriculum. I, II, S. 3 hr. PR: High-school teaching experience, or consent. Emphasizes socio-economic and cultural influences on

the curriculum; principles of curriculum development; curriculum building in the various teaching fields; techniques of experimentation and evaluation; and practice in curriculum building with special emphasis on unit construction. Mr. Cook

337. Problems in Elementary and Secondary-School Curriculum. I, II. 2 hr. PR: 8 hr. graduate education, including Ed. 336. Critical study of selected problems in curriculum with special emphasis on research. Mr. Cook

338. Problems in the Secondary School. I, II. 2 hr. PR: Consent. Culminating internship course for principals. Required research project designed to improve instruction and/or administration of the school. Mr. Harrah and M. Gautier

339. Public School Organization and Administration. I, S. 3 hr. PR: 20 hr. of education courses. Provides basic concepts through which administrators, supervisors, and teachers gain understanding of basic problems related to the operation of schools and school systems. Mr. Gautier

340. Public-School Finance. 3 hr. PR or Conc.: Ed. 339 and consent. Sources of school support; taxation; efficient management of school money, improved budget practices and adequate apportionment plans. To be taken late in student's candidacy. Mr. Harrah

341. School Buildings and Equipment. I, S. 2 hr. PR or Conc.: Ed. 339 and consent. Philosophy, planning, and management of the school plant as an appropriate educational environment. Mr. Harrah

342. Public Education and the Law. 3 hr. Legal permissives and limitations involved in setting policy for, organization of, and administration of public schools. Mr. Harrah

343. School Surveys. S. 2 hr. PR or Conc.: Ed. 339 and consent. Development of the educational survey as an instrument for improving educational procedures. Mr. Hofstetter and Staff

344. Staff-Personnel Administration. S. 2 hr. PR or Conc.: Ed. 339, consent. Selection, induction, direction, evaluation, improvement, and promotion of members of the administrative, supervisory, instructional, research, clerical, and maintenance staffs. Staff

345. Seminar in Educational Leadership. I, II, S. 2-8 hr. PR: Consent. An integrated study of the problems of school leaders in the areas of administration, supervision, and instruction. Mr. Harrah and Staff

346. Principles of Supervision. 3 hr. Basic, general principles of elementary-school, junior high-school, and senior high-school supervision. Mr. Harrah

347. Reading for Mentally Retarded Children. I, S. 3 hr. Designed especially for majors in Special Education. Emphasizes the techniques, methods, and materials most effective for teaching reading to sub-normal children. Mr. Kennedy

348. Human Development and Behavior. I, II, S. 3 hr. A study of the interrelationship of physical and environmental factors as these affect behavior of children and youth. Mr. McAvoy

349. Psychological Foundations of Learning. I, II, S. 3 hr. A study of the psychological and philosophical foundations of major learning theories. Mr. McAvoy

350. Inter-Disciplinary Seminar for School Administrators. I, II. 6 hr. PR: Consent. A study of the academic disciplines pertinent to school administration. Staff

351. Communications and New Educational Media. 3 hr. The psychological implications of communications media in learning and teaching. Attention to educational television, programmed instruction, cross-media, techniques, and experimental and developmental programs. Mr. Huffman

353. The Secondary-School Principal. S. 3 hr. PR: Ed. 339 and high-school teaching experience, or consent. Open only to graduate students in Education, late in candidacy. Practicum in secondary-school administration. Mr. Miller and Mr. Gautier

356. Elementary-School Principal. S. 3 hr. PR: 6 graduate hours of elementary education, or consent. A study of the function of administration and supervision in the modern elementary school, emphasizing the role of the principal as an instructional leader. Designed particularly for persons preparing for administrative and supervisory positions. (to be taken late in candidacy.) Mr. Bell

360. Problem in Education. I, II, S. 3 hr. Research for Master's Degree in Education, option B. Staff

361. Thesis in Education. I, II, S. 6 hr. Research for Master's Degree in Education, option A. Staff

362. Project in Education. I, II, S. 3-6 hr. Research for the program leading to the Certificate of Advanced Study in Education. Staff

363. Dissertation. I, II, S. Research for the Doctor of Education Degree. Staff

364. Advanced Methods in Teaching Industrial Education. II, S. 3 hr. PR: Ed. 194 or consent. Trends in Industrial Education reflecting modern teaching methods; classroom representation of industrial methods; effective use of the newer instructional media. Mr. Brennan

365. Curriuclum Construction in Industrial Arts. S. 3 hr. PR: Consent. Techniques used in building curriculum designs in industrial arts. Mr. Ault

366. Teaching the Language Arts. I, S. 3 hr. PR: Consent. A study of the interrelationships among the different phases of the language arts. Special attention is given to organizing the language arts program, selecting materials and equipment, and understanding effective techniques and methods for teaching, listening, oral language, written language, handwriting, and spelling. Mr. Kennedy

367. Social Studies in Secondary Schools. I, S. 3 hr. PR: Consent. Nature and function of social studies in the secondary school; utilization of community, state, national, and world resources in teaching; selection of content for teaching purposes; curriculum construction with emphasis on resource and teaching units. Mr. Cook

368. Nature and Needs of Exceptional Children. I, II, S. 3 hr. PR: Consent. Etiology, philosophy, and education of mentally retarded, physically handicapped, and mentally advanced. Overview of identification of exceptional children, their training and possibility of placement. Mr. Neff

369. Curriculum, Materials and Methods for the Mentally Retarded. I, II, S. 3 hr. PR: Consent. History and philosophy of teaching the mentally retarded. Identification, curriculum, materials and methods of teaching the mentally retarded. Mr. Neff

370. Principles of Instruction. I, II, S. 3 hr. PR: Consent. Emphasizes the basic principles of teaching-learning process implied in major learning theories; study of factors in learning such as problem solving, competencies needed by teacher; improving techniques common to traditional and modern methods of instruction. Mr. Cook

371. Curriculum, Materials, and Methods for Mentally Gifted. I, II, S. 3 hr. History and philosophy, identification, curriculum, materials and methods of working with mentally gifted. Mr. McAvoy

372. Statistical Analysis in Education. I, II, S. 3 hr. PR: Ed. 271 or consent. Review measures of central tendency, percentiles, and correlation. Emphasis placed on correlation, regression, testing hypotheses, non-parametric tests, and other measures in analysis and inference. Mr. Bailey and Mr. Gautier

373. Basic Course in Guidance. I, II, S. 3 hr. An overview of a total guidance program. Mr. Wagner

374. Educational and Occupational Information Service. I, S. 2 hr. PR: Ed. 373. Methods of gathering and disseminating occupational and educational information. Mr. Wagner

375. Individual and Group Inventory Techniques. I, II, S. 3 hr. PR: Ed. 373 and consent. Comprehensive study of all objective measures used in schools; techniques of administering and interpreting to individuals and groups; developing testing programs and costs. Mr. Neff

376. Counseling Techniques and Special Counseling Problems. I, II, S. 3 hr. PR: Ed. 373, 374, 375. Analytical consideration of identifying causes and development of psychological maladjustments. Seminar study of counseling techniques with practice under supervision. Mr. Jarecke

377. Advanced Studies of Human Adjustment. I, II, S. 3 hr. PR: Ed. 373, 374, 375, 376. Clinical consideration of identification, causes, and development of psychological maladjustments; further study of developments in counseling and background in advanced studies in guidance. Mr. Jarecke

378. Organization and Administration of Guidance. II, S. 2 hr. PR: Ed. 373, 374, 375, 376. Operation of guidance programs in terms of personal functions, relationships, physical facilities, instructional integration, financial standards, law and regulations. Mr. Jarecke

380, 381, 382, 383. Practice in Supervision. I, II. Credit: 2 hr. ea. PR: Assignment to actual full-time work in supervision in a school system, previous certification, and consent. Each course a continuation of the preceding. To complete the entire 8 hours, not less than two full years of field experience will be accepted. Mr. Harrah

385. Historical and Sociological Foundations of American Education. I, II, S. 3 hr. A study of the development of American education. Emphasis placed upon movements and leaders. Mr. Bell

395, 396, 397, 398. Practicum. I, II, S. 2-4 hr. per sem. or term—aggregating not more than 12 hr. PR: 8 graduate hr. in Education. Enrollment with permission of adviser or instructor in consultation. Special individual and group projects. Staff

To provide appropriate residence credits for special workshops, prolonged systematic conferences on problems and projects in Education. Credits in these projects cannot be substituted for required courses. Staff

Agricultural Education: Mr. Butler
Audio-visual Education: Mr. Huffman
Education Measurement and Evaluation: Mr. Bailey and Mr. Gautier
Educational Psychology: Mr. Bailey, Mr. McAvoy, Mr. Neff, and Mr. Wagner
Guidance: Mr. Jarecke, Mr. Wagner
Elementary Education: Mr. Katz, Mr. Kennedy, and Mr. Bell
Home Economics Education: Miss Brown

Human Growth and Development: Mr. Wagner, Mr. McAvoy, and Mr. Orlandi
Industrial Education: Mr. Ault and Mr. Brennan
Music Education: Mr. Brown
Philosophy of Education: Mr. Bell
School Administration: Mr. Bell, Mr. Gautier, Mr. Harrah, Mr. Hofstetter, and Mr. Miller
Secondary Education: Mr. Cook and Mr. Miller
Special and Adult Education: Mr. Neff
Supervision: Mr. Harrah
Teaching of Mathematics: Mrs. Cunningham
Teaching of Science: Mr. Katz
Teaching of Social Studies: Mr. Cook, Mr. Bell, and Mr. Gautier
Vocational Education: Miss Brown and Mr. Butler

399. Seminar in Educational Research. II. 2 hr. PR: Ed. 301 and consent. Application of research methods and techniques to problems in modern education; analysis and implications of results. Mr. Hofstetter and Mr. Ikenberry

SECRETARIAL STUDIES

51. Business Communications. II. 3 hr. PR: 6 hr. English composition and ability to type. Mr. Lee

61. Typewriting. I. 2 hr. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

62. Typewriting. I, II. 2 hr. PR: Sec. Studies 61 or equiv. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

125. Shorthand. I. 4 hr. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

126. Shorthand. II. 4 hr. PR: Sec. Studies 125 or equiv. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

131. Secretarial Training and Office Practice. I. 3 hr. PR: Ability to type. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

132. Transcription. II. 2 hr. For students in the College of Education with a Commerce teaching field, or consent. Mr. Lee

The College of Engineering and The School of Mines

General Information

THE COLLEGE OF ENGINEERING; THE SCHOOL OF MINES

For the purpose of administration and instruction, the College of Engineering is organized into the following departments:

Aerospace Engineering (A.E.)
Agricultural Engineering (Ag.E.)
Chemical Engineering (Ch.E.)
Civil Engineering (C.E.)
Electrical Engineering (E.E.)
Mechanical Engineering (M.E.)
Industrial Engineering (I.E.)
Theoretical and Applied Mechanics (T.A.M.)

For the purpose of administration the School of Mines is divided into the following divisions:

Mining Engineering (E.M.)
Petroleum Engineering (Pet.E.)
Mining and Industrial Extension
Coal Research Bureau

Curricula Accredited By The Engineers' Council For Professional Development

The Engineer's Council for Professional Development, a joint body concerned with the enhancement of the status of the engineer and the engineering profession, has been designated by its constituent bodies (American Society of Civil Engineers, American Institute of Mining, Metallurgical and Petroleum Engineers, The American Society of Mechanical Engineers, American Institute of Electrical and Electronics Engineers, The American Society for Engineering Education, American Institute of Chemical Engineers, American Institute of Aeronautics and Astronautics, National Council of State Boards of Engineering Examiners, and the Engineering Institute of Canada) as the co-ordinating agency for the accrediting of undergraduate engineering curricula in the United States.

Undergraduate curricula of the College of Engineering and the School of Mines are accredited by the Engineer's Council for Professional Development and include: aerospace, agricultural, chemical, civil, electrical, industrial, mechanical, and mining.

Buildings

The *College of Engineering* is housed in new buildings on the Evansdale Campus. The Engineering Center is located approximately a mile from the Main Campus and one-half mile from the Medical Center Campus. The main structure of the Engineering Center is a 14-floor building, featuring an 11-story tower on a 3-story base. The Center has been carefully planned to enable the College to accelerate its educational, research, and special programs—all designed to serve the State and the nation.

The *School of Mines* is housed in the Mineral Industries Building on the Main Campus.

Requirements for Degrees

Any student, in order to be eligible to receive a Bachelor's degree in any branch of engineering for which degrees are offered, in addition to satisfying all entrance requirements, shall be required to complete satisfactorily the number of semester hours of work as specified in the curriculum of the department leading to the degree for which the student is a candidate, plus the general requirements of physical education, military or air science, and English proficiency by the University for such a degree.

A grade of "C" or better must be attained in each mathematics course before registration in a subsequent mathematics course is allowed. This rule shall not apply to Mathematics 2 and Mathematics 7.

UNIVERSITY CORE CURRICULUM REQUIREMENTS

All undergraduates entering the University for the first time in September, 1964, or later must complete the University Core Curriculum requirements in order to graduate. (See page 93).

SUBSTITUTIONS

The following substitutions are regularly allowed in addition to special substitutions listed elsewhere:

Physics 1, 2, 109, and 110 for Physics 111 and 112.

Sociol. 1, Philos. 4, Pol. Sci. 101 or equiv., or Psych. 1 for Hist. 53.

THESIS

A candidate for a baccalaureate degree in some branches of engineering may, with the consent of his major professor, prepare a thesis on some subject relating to a special branch of engineering or other department of applied science. It will be presented for approval first to the instructor under whose guidance it has been prepared, then to the chairman of the department in which the degree is to be conferred. A typewritten copy of the thesis, prepared in accordance with official specifications and signed by both the instructor in charge and the chairman of the department, must be placed in the University Library before graduation.

THE COLLEGE OF ENGINEERING CURRICULA

The several four-year curricula are set up to give, in the first two years, a well-rounded training in the basic sciences of mathematics, chemistry, and physics, and in English.

This is followed by such technical subjects as mechanics, thermodynamics, and electricity. The degree of emphasis varies somewhat with the curriculum followed. These courses bridge the gap between the pure sciences and the professional courses. In addition, courses in the humanities are given throughout the four years.

In the third and fourth years, special emphasis is placed on the professional work of the engineer. In these years a certain number of credit hours are available for electives.

The curricula are:

1. A four-year curriculum leading to the degree of Bachelor of Science in Aerospace Engineering.
2. A four-year curriculum leading to the degree of Bachelor of Science in Agricultural Engineering.
3. A four-year curriculum leading to the degree of Bachelor of Science in Chemical Engineering.
4. A four-year curriculum leading to the degree of Bachelor of Science in Civil Engineering.

5. A four-year curriculum leading to the degree of Bachelor of Science in Electrical Engineering.
6. A four-year curriculum leading to the degree of Bachelor of Science in Industrial Engineering.
7. A four-year curriculum leading to the degree of Bachelor of Science in Mechanical Engineering.
8. Combined science and engineering curricula extending over five or more years leading to the Degree of Bachelor of Science and Bachelor of Science in Engineering.

Classification of Students

To be classified as a freshman in the College of Engineering or the School of Mines, a student must have credit for at least 15 units of entrance requirements. To be classified as a sophomore he must have credit toward his degree for 30 hours; as a junior 72 hours; as a senior 112 hours; except that a student who is a candidate for the degree of Bachelor of Science to be classified as a sophomore must have credit for 27 hours of college work, as a junior, 60 hours; as a senior, 94 hours.

CURRICULUM IN AEROSPACE ENGINEERING

Degree: Bachelor of Science in Aerospace Engineering

Aerospace Engineering embraces the science and technology of all vehicles which are not bound to the earth. This includes all types of aircraft, rockets, missiles, and spacecraft, whether flight takes place in the atmosphere or beyond it.

The Aerospace Engineering Curriculum includes the disciplines encountered in the design of all of these vehicles. In addition to aerodynamics and structures, the aero-space engineer must now be familiar with propulsion systems and control and guidance systems. The curriculum may serve as a terminal program by incorporating design oriented courses for the technical electives, or it may be used as a preparatory program for advanced study by the selection of science oriented courses for these technical electives.

Aerospace Engineering theory and laboratory courses are scheduled in the curriculum to complement each other, so that the greatest benefit may be derived from both. The laboratory courses also provide the students with the opportunity to become familiar with modern laboratory instrumentation and research methods.

The Department of Aerospace Engineering operates seven laboratories:

Subsonic Wind Tunnel—A 200 mph low-turbulence wind tunnel is used for research and to supplement lecture courses in theoretical and applied subsonic aerodynamics.

Supersonic Wind Tunnel—A Mach 1.50 continuous-flow indraft-type wind tunnel is used for research and instruction, particularly at the graduate level.

Aerospace Structure Laboratory—To complement classroom work dealing with the theory of aerospace vehicle structural analysis.

Propulsion Laboratory—For undergraduate and graduate electives in this area.

Design Laboratory—For third- and fourth-year courses in detail, aerodynamic, and structural design.

Flight Test Airplane—A Cessna Model 182 airplane is used as a flying laboratory for a course in flight testing.

Flight Hangar—Hangars University-owned aircraft. Some of the airplanes are used for flight training instruction.

FIRST YEAR AEROSPACE ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
G. 1—Engineering Lectures	Cr.	Math. 116—Calculus	4
Math. 15—Calculus	4	Physics 11—General Physics	4
M.E. 20—Eng'g. Draw and Graphics	3	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Humanities 1	4	Humanities 2	4
Math. 117—Calculus	4	Math. 253—Adv. Applied Math.	3
Physics 102—General Physics	4	Physics 124—Intro. to Mod. Physics	4
Speech 11—Public Speaking	3	T.A.M. 102—Mech. of Materials I	3
T.A.M. 101—Statics	3	T.A.M. 104—Dynamics	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	20		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
A.E. 116—Intro. to Flight Veh.	3	A.E. 209—Fluid Mechanics	3
A.E. 201—Fluid Dynamics I	4	A.E. 210—Flight Veh. Struc. I	3
Math. elective	3	A.E. 223—Fluid Dynamics II	3
M.E. 120—Eng'g. Thermodynamics	3	E.E. 105—Electrical Fund.	4
Non-technical elective	3	English 126—Adv. Comp.	3
T.A.M. 103—Mech. of Materials II	3	Non-technical elective	3
	19		19

FOURTH YEAR

First Sem.	*H*	*Second Sem.*	*Hr.*
A.E. 205—Exp. Fluid Dynamics	2	A.E. 213—Exp. Flight Veh. Struc.	1
A.E. 207—Flight Veh. Design	3	Mat.E. 250—Mat'l. Sci. Eng'g.	3
A.E. 211—Flight Veh. Struc. II	3	M.E. 230—Heat Transfer	3
A.E. 224—Flight Veh. Propulsion	3	Non-technical elective	3
E.E. 145—Electronic Fund.	4	Technical electives	6
Inspection Trip	Cr.		
Non-technical elective	3		
	18		16

Non-technical electives may be selected from the following list of subjects: Sociology, Philosophy, History, Political Science, Psychology, and Economics. The 12 semester credit hours must consist of at least three of these subjects.

Technical electives must be selected from Aerospace Engineering courses in the 200 series or from advanced mathematics.

CURRICULUM IN AGRICULTURAL ENGINEERING

Degree: Bachelor of Science in Agricultural Engineering

Agricultural Engineering is the application of engineering principles to agriculture. Success in the application of engineering fundamentals to the agricultural industry requires knowledge of both the biological and physical sciences. The purpose of the course is to give the student general training in agricultural and engineering fundamentals. Considerable stress is given to basic requirements of plant and animal life which affect engineering practices, but greater emphasis is placed

on a thorough knowledge of those underlying principles and methods which are the foundation of all the engineering professions.

Although the curriculum gives no opportunity for specialization, Agricultural Engineering is made up of four major fields. These are: Farm Power and Machinery, Farm Structures, Soil and Water Conservation, and Electric Power and Processing.

Students preparing to take Agricultural Engineering should present for entrance as many units as possible in mathematics, chemistry, and physics.

Some of the organizations and industries employing agricultural engineers are electric power companies and cooperatives; farm machinery manufacturers and distributors; manufacturers and distributors of building materials; oil companies; electric equipment and other suppliers of farm utilities; trust companies; farm management agencies; federal agencies such as Soil Conservation Service, U. S. Department of Agriculture, Federal Land Bank, and Indian Service; colleges and universities; Army and Navy, and foreign governments.

FIRST YEAR AGRICULTURAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
Math. 15—Calculus	4	Math. 116—Calculus	4
M.E. 20—Eng'g. Draw. and Graphics	3	Physics 11—General Physics	4
Mil. Sci. 1 or Air Sci. 1	2	Mil. Sci. 2 or Air Sci. 2	2
Phys. Ed. 1—General Program	1	Phys. Ed. 2—General Program	1
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Ag.E. 10—Intro. to Agr. Eng'g.	3	Physics 124—Intro. to Mod. Physics	4
Physics 102—General Physics	4	Math. 253—Adv. Applied Math.	3
Math. 117—Calculus	4	T.A.M. 102—Mech. of Materials I	3
T.A.M. 101—Statics	3	Econ. 2—Principles	3
Econ. 1—Principles	3	M.E. 121—Thermodynamics	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	19		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 26—Eng'g Draw. and Graphics	2	C.E. 115—Fluid Mechanics	3
E.E. 105—Electrical Fundamentals	4	E.E. 205—Electrical Fundamentals	4
T.A.M. 103—Mech. of Materials II	3	C.E. 1—Surveying	2
T.A.M. 104—Dynamics	3	M.E. 109—Mechanism	2
Humanities 1	4	Humanities 2	4
English 126—Adv. Comp *OR* Speech 11—Public Speaking	3	Agron. 2—Soils	3
	19		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
AI & VS 51—Prin. of Animal Sci. *OR* Hort. 52—Prin. of Plant Sci.	4	Ag.E. 100—Farm Structures	3
Ag.E. 230—Farm Power	3	Ag.E. 190—Farm Machinery	3
Ag.E. 250—Soil and Water Conserv.	3	Ag.E. 210—Application of Elect.	3
M.E. 201—Des. of Mach. Members	3	Rural Sociol. 105—Sociol. of Rural Life	3
Agr. Econ. elective*	3-2	Electives	6
Electives	3-4		
	19		18

*Agricultural Economics electives must be chosen from Agr. Econ. 240, 261, or 271.

CURRICULUM IN CHEMICAL ENGINEERING

Degree: Bachelor of Science in Chemical Engineering

The standard four-year course in chemical engineering has been developed to qualify young men for positions in operation, design, construction, and management of manufacturing plants in which raw materials are subjected to chemical and physical changes to produce finished products.

This curriculum includes fundamental courses in mathematics through differential equations; inorganic, analytic, organic, and physical chemistry; physics; basic engineering principles, calculations, thermodynamics, and kinetics, design and economics, unit operations, process dynamics, and statistics. This curriculum provides the student with a broad foundation in the fundamental principles of those subjects which wide experience has shown to be essential for successful careers in the chemical engineering profession; or as engineers in any industry involving chemical processing.

To complete the requirements for the Bachelor of Science in Chemical Engineering degree in four years, students should follow the curriculum as outlined.

Students preparing to take Chemical Engineering should present for entrance as many units as possible in mathematics, chemistry, and physics. It is desirable, also, to have units in German, French, or Russian. While certain basic courses in English and public speaking are required in the regular curriculum, a student will obtain a broader education in economics, history, language, science, and engineering by taking the combined Bachelor of Science and Chemical Engineering courses. By a careful selection of electives, both degrees may be earned in five years.

In recognition of the increasing tendency on the part of industry to promote engineers to administrative and executive positions, the curriculum has been broadened to include more required work in the field of humanities. Additional elective courses may be selected from the humanities and business administration courses.

In addition to the demand for students trained in chemical engineering, there is considerable demand throughout the State for men trained in Materials Science Engineering. These fields are closely allied with chemical engineering. A basic course in Materials Science is recommended for all students seeking a degree in chemical engineering. In addition, students may elect courses in this area in their undergraduate and especially in their graduate programs. These courses are integrated with the chemical engineering courses, making use of many of the fundamental concepts common to these categories.

The department, is a part of the Engineering Experiment Station. The combined facilities of the department and the station are available for investigation and research. The greater number of projects are so selected that graduate students, and to some extent undergraduate students, participate in the program.

FIRST YEAR CHEMICAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
Chem. 3—Inorganic Chem.	5	Chem. 4—Inorganic Chem.	5
Math. 15—Calculus	4	Math. 116—Calculus	4
G. 1—Engineering Lectures	Cr.	Physics 11—General Physics	4
Mil. Sci. 1 or Air Sci. 1	2	Mil. Sci. 2 or Air Sci. 2	2
Phys. Ed. 1—General Program	1	Phys. Ed. 2—General Program	1
	15		19

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 117—Calculus	4	Math. 253—Adv. Applied Math.	3
Chem. 260—Physical Chem.	3	Chem. 261—Physical Chem.	3
Humanities 1	4	Humanities 2	4
Physics 102—General Physics	4	Physics 125—Intro. to Mod. Physics	3
T.A.M. 101—Statics	3	T.A.M. 104—Dynamics	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	20		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Hum-Social (elective)	3	Math. elective	3
Chem. 233—Organic Chem.	4	Chem. 238—Organic Chem.	4
Ch.E. 201—Ch.E. Fund.	3	Ch.E. 202—Ch.E. Fund.	3
Ch.E. 242—Thermo. and Kinetics	3	Ch.E. 243—Thermo. and Kinetics	3
Ch.E. 248—Stat. Des. of Experiments	2	E.E. 105—Electrical Fundamentals	4
Physics 126—Intro. to Mod. Physics	3	Hum-Social (elective)	3
	18		20

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Hum-Social (elective)	3	Hum-Social (elective)	3
T.A.M. 102—Mech. of Materials	3	Speech 11—Public Speaking	3
Ch.E. 206—Ch.E. Oper.	3	Ch.E. 208—Ch.E. Oper.	3
Ch.E. 272—Design	2	Ch.E. 211—Ch.E. Lab.	2
Ch.E. 283—Proc. Dynamics	3	Ch.E. 273—Design	2
English 126—Adv. Comp.	3	Technical elective	3
Technical elective	3		
	20		16

Six hours of a modern foreign language may be taken in place of English 126 or Speech 11. English 126 will be required if the average grade in English 1 and 2 is "C" or less.

Materials Science Engineering

H. V. Fairbanks and P. R. Jones, *Program Co-directors*

Admission. The graduate program in Materials Science Engineering leading to the degree of Master of Science in Engineering is open to any graduate of an accredited engineering or certain science-oriented curricula.

Courses. In general, the courses required in this program are Physics 270 and 271, Ch.E. 248, and Mat.E. 250, 255, 260, 265, 269 and 397. A satisfactory thesis is required. It is suggested that electives be chosen from the group Mat.E. 254, 261, 262, 263, 350, 351, 352, 360, 361, Ch.E. 341, Nuc.E. 392 and T.A.M. 200, 203, and 310. Other elective courses may be used by permission of the program co-directors.

Facilities. The specialized facilities for Materials Science Engineering include well-equipped laboratories for the complete examination and testing of materials including ceramics, metals, alloys and synthetics, and for research in these areas. In addition, the laboratory facilities of other departments may be utilized as needed.

Nuclear Engineering

J. A. Kent, *Program Director*

Admission. The program for the degree of Master of Science in Nuclear Engineering has been approved by the Atomic Energy Commission for recipients of Atomic Energy Commission Special Fellowships in Nuclear Energy Technology.

Before being admitted to candidacy for the degree of Master of Science in Nuclear Engineering, the prospective student must be admitted to the Graduate School.

Courses. A fairly rigid curriculum is followed for the M.S.N.E. Degree. This is necessary in view of the fact that students of diverse background may be admitted for this degree.

The required courses for the degree are: Physics 225, 226, 287, 288; Nuc.E. 390, 391, 392, 393; and a research thesis. In addition, six hours of related elective courses are required. Approved electives include Math. 357 and 358; Ch.E. 306 and 344. Other elective courses may be taken, subject to the approval of the candidate's adviser.

Facilities. The specialized facilities for nuclear engineering include a swimming pool reactor, electronic nuclear reactor simulator, graphic sigma pile, a 500-curie radiation facility, and a modern radioisotopes laboratory for instruction and research. The various departments in the College of Engineering are also well equipped for a variety of research projects which are applicable in the field of nuclear technology.

CURRICULUM IN CIVIL ENGINEERING

Degree: Bachelor of Science in Civil Engineering

The civil engineering curriculum has been planned to give a broad coverage of those general and scientific subjects that form the foundation of all engineering and special training in the civil engineering field. General subjects are included in all semesters of the four-year program. These are intended to improve and enrich the student's understanding of man's relation to man and they have been classified as communications, humanities, and social consciousness courses. In addition to drawing, physics, and mathematics, which form the roots of any engineering course, the student investigates such fields as chemistry and geology which give a breadth of scientific training.

A comprehensive study of earth measurements and survey engineering is scheduled for the summer following the first year. Training at the professional level in photogrammetry and geodesy may be elected during the fourth year to round out this work.

Courses in theoretical and applied mechanics, thermodynamics, and electrical engineering furnish breadth of training in engineering subjects and depth of training comes from professional work in transportation, structural and sanitary engineering, and soil mechanics, any of which may be the specialty of the civil engineer.

The civil engineering professional field is too broad to be covered thoroughly in a four-year course. For this reason, primary emphasis is placed on engineering fundamentals. A degree of professional specialization is still possible, however. The student, during his last year, may select specialized courses in the fields of transportation, sanitary engineering, structural engineering, or soil mechanics. If he prefers, he may elect to prepare a thesis or may elect upper-division courses from other engineering departments.

The State Road Commission of West Virginia and the Department of Civil Engineering offer a cooperative program in which the student divides his time between formal education and practical experience. One or more semesters are spent each year pursuing the regular Civil Engineering curriculum in school and for the remainder of the time the trainee is employed by the State Road Commission, where all possible advantage is taken of the engineering theory which the student has studied. The student's pace through the curriculum is determined primarily by his financial position. Upon successful completion of the program, the regular B.S.C.E. degree is granted and the trainee is offered an engineering position with the S.R.C.

FIRST YEAR CIVIL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
G. 1—Engineering Lectures	Cr.	Math. 116—Calculus	4
Math. 15—Calculus	4	Physics 11—General Physics	4
M.E. 20—Graphic Science I	3	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		18

SUMMER

C.E. 102—Survey Engineering (five weeks) 6

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Humanities 1	4	Humanities 2	4
Math. 117—Calculus	4	Math. 240—Diff. Equations *OR* Math. 253—Adv. Appl. Math.	3
T.A.M. 101—Statics	3	T.A.M. 102—Mech. of Materials I	3
Physics 102—General Physics	4	T.A.M. 104—Dynamics	3
Mil. Sci. 3 or Air Sci. 3	2	Physics 124—Modern Physics	4
		Mil. Sci. 4 or Air Sci. 4	2
	17		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
C.E. 115—Fluid Mechanics	3	C.E. 146—Sanitary Eng'g. I	3
C.E. 131—Highway Eng'g.	4	C.E. 160—Structural Analysis I	5
Geol. 1—General Geology	3	C.E. 280—Soil Mechanics	3
M.E. 121—Thermodynamics	3	E.E. 105—Electrical Fund.	4
T.A.M. 103—Mech. of Materials II	3	Non-technical elective	3
Non-technical elective	3		
	19		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
C.E. 147—Sanitary Eng'g. II	3	C.E. 221—Eng'g. Hydraulics	3
C.E. 260—Struct. Analysis II	3	C.E. 271—Struct. Design II	3
C.E. 270—Struct. Design I	3	English 126—Adv. Composition *OR* Speech 11—Public Speaking	3
Mat.E. 250—Mat'ls. Sci. Eng'g.	3	Non-technical elective	3
Non-technical elective	3	Science or Eng'g. Sci. elective	3
Technical elective	3	Technical elective	3
	18		18

Six hours of a modern foreign language may be taken in place of English 126 or Speech 11. English 126 will be required if the average grade in English 1 and 2 is "C" or less.

Technical electives must include at least one course in Civil Engineering.

Non-technical electives must be selected from the areas of social sciences and humanities.

CURRICULUM IN ELECTRICAL ENGINEERING

Degree: Bachelor of Science in Electrical Engineering

The course in electrical engineering has been developed for the purpose of giving the student who completes the course general training in engineering fundamentals and broad training in the field of electrical engineering. Special training in the electrical power field or the communications field is available as electives in the senior year.

In the first two years of electrical engineering, the work is limited mostly to those subjects which are essential as preparatory courses for the more technical courses in the third and fourth years.

During the third year, fundamental courses in electrical engineering are introduced. Two courses in modern physics are included.

In the fourth year the curriculum is mainly courses in electrical engineering, and electives. Non-technical electives to help satisfy the University Core Curriculum, technical electives to offer courses of special interest to the student and an advanced mathematics elective. These electives will be of special interest to students planning to enter graduate school.

FIRST YEAR ELECTRICAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
G. 1—Engineering Lectures	0	Math. 116—Calculus	4
Math. 15—Calculus	4	Physics 11—General Physics	4
M.E. 20—Eng'g. Draw. & Graphics	3	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Humanities 1	4	Humanities 2	4
Math. 117—Calculus	4	E.E. 25—Electrical Circuits	4
Physics 102—General Physics	4	Math. 253—Adv. Applied Math.	3
T.A.M. 101—Statics	3	Speech 11—Public Speaking	3
Mil. Sci. 3 or Air Sci. 3	2	T.A.M. 104—Dynamics	3
		Mil. Sci. 4 or Air Sci. 4	2
	17		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Econ. 1—Principles	3	Econ. 2—Principles	3
E.E. 125—Electrical Circuits	4	E.E. 152—Electronics	4
E.E. 126—Electric & Mag. Fields	3	E.E. 225—Electric Circuits	4
English 126—Adv. Comp.	3	E.E. 226—Electromagnetic Fields	3
Physics 125—Intro. to Mod. Physics	3	Physics 126—Intro. to Mod. Physics	3
T.A.M. 102—Mech. of Materials I	3		
	19		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
E.E. 200—Seminar	0	C.E. 115—Fluid Mechanics	3
E.E. 232—Electromechanical Dev.	4	E.E. 233—Electromechanical Dev.	4
E.E. 252—Electronics	3	E.E. 262—Electronics & Comm. Lab.	2
Math. elective	3	E.E. 270—Eng'g. Analy. & Design	3
M.E. 121—Thermodynamics of Eng'g.	3	Non-technical electives	3
Non-technical electives	3	Technical electives	3
Technical electives	3		
	19		18

ELECTIVES

Non-technical electives shall be selected from the following subjects: Economics, a Language (at intermediate level), History, Humanities, Philosophy, Political Science, Psychology, Sociology.

Technical electives shall be selected from the following: Advanced Mathematics, Physics, or an engineering course in the 200 series.

CURRICULUM IN INDUSTRIAL ENGINEERING

Degree: Bachelor of Science in Industrial Engineering

Industrial Engineering is a relatively new branch of engineering. The industrial engineer must combine his knowledge of engineering principles with everyday manufacturing operations in order that the product be produced in sufficient quantities at minimum cost. The field of the industrial engineer is that of the process, production,

and cost expert engaged in planning, organizing, improving, managing, and operating the various procedures in producing all kinds of manufactured products.

The purpose of the curriculum in industrial engineering is to provide training for those students who are interested in the managerial and technical activities of the engineering field. Industrial engineering is, basically, engineering with its foundation in mathematics and the sciences, with emphasis upon the human factors and the economic aspects which are essential in engineering work.

There are many new problems challenging industry. Industrial engineers are being called upon more and more to answer this challenge. Their job is to coordinate man, machine, and method into a smooth-running organization.

The first and second years are devoted to basic courses in English, mathematics, chemistry, physics, statics, mechanics of materials, graphics, and manufacturing processes which are essential to the more technical courses which follow in the third and fourth years.

Industrial engineering includes motion and time study analysis for work simplification and standardization, control of quality, control of quantity through use of production control techniques, and control of labor costs through use of such management activities as job evaluation and wage incentives.

The laboratories provide the student with practice in the various phases of industrial engineering. Facilities are also available for research and development of methods and procedures for manufacture and control.

Besides giving the engineering fundamentals, industrial engineering provides for basic course work in the fields of mechanical and electrical engineering. The studies provide for intensive training in the various branches of industrial engineering. The specialization courses starting in the junior year are planned for progressive instruction in the principles and techniques of industrial engineering as practiced in industry.

Statistics has been increasing steadily as a tool in industrial engineering. One of its greatest contributions in recent years has been in the control of quality of manufactured products by statistical method. Recent additions to the curriculum prepare students for more advanced statistical analysis, as may be applied to production and costs, as well as research. Among the newest courses, which advanced and graduate students may choose to investigate, are the concepts and theories of Operations Research, such as linear programming, queueing, theory of games, and statistical inventory control.

West Virginia has many types of industries in which industrial engineers may be profitably employed. Greater efficiency in operations as well as the expansion of industrial activities in the State will maintain the need for graduates in this ever-developing field.

FIRST YEAR INDUSTRIAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2— Inorganic Chem.	4
English 1—Comp. & Rhet.	3	English 2—Comp. and Rhet.	3
G. 1—Engineering Lectures	Cr.	Math. 116—Calculus	4
M.E. 20—Eng'g. Draw. and Graphics	3	Physics 11—General Physics	4
Math. 15—Calculus	4	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Econ. 1—Principles	3	Econ. 2—Principles	3
Humanities 1	4	Humanities 2	4
Math. 117—Calculus	4	Math. 253—Adv. Math.	3
Physics 102—General Physics	4	Physics 124—Modern Physics	4
T.A.M. 101—Statics	3	T.A.M. 104—Dynamics	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	20		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
E.E. 105—Electrical Fund.	4	E.E. 205—Electrical Fund.	4
I.E. 100—Mfg. Processes	3	I.E. 110—Tool Design	3
I.E. 131—Fund. of I.E.	2	I.E. 140—Motion & Time Study	3
I.E. 180—Intro. to Digital Comp.	3	I.E. 151—Acct. for Engr's.	3
I.E. 244—Eng'g. of Statistics	3	I.E. 214—Adv. Anal. Eng'g. Data	3
T.A.M. 102—Mech. of Materials I	3	M.E. 121—Thermodynamics	3
	18		19

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
C.E. 115—Fluid Mechanics	3	I.E. 294—Std. Mfg. Costs	3
I.E. 142—Prod. Control	3	Psych. 115—Psychology of Ind.	3
I.E. 254—Intro. Oper. Research	3	*Speech 11—Public Speaking	3
I.E. 287—Eng'g. Economy	3	**Electives—I.E. Technical	6
I.E. 290—Ind. Stat.	2	***Elective—Non-Technical	3
Mat.E. 250—Mat. Sci. Eng'g.	3		
	17		18

*Either Speech 11 or English 126 may be taken.

**Elective (I.E. Technical) must be taken from any of the Industrial Engineering courses listed in the Courses of Instruction.

***Elective (Non-Technical) may be selected from psychology, philosophy, economics, sociology, or foreign languages.

A student wishing to specialize in Operations Research should take six hours of I.E. Technical Electives from the following list of courses: I.E. 215, I.E. 253, and Math. 242.

CURRICULUM IN MECHANICAL ENGINEERING

Degree: Bachelor of Science in Mechanical Engineering

Mechanical engineers, who work in a wide variety of industries, make vital contributions to power generation, transportation, manufacturing, nuclear-energy developments, space exploration and other activities. For example, many of the engineers in the satellite and space programs are mechanical engineers working on re-entry problems, nose cones, rocket motors, guidance systems, and other associated problems.

Large numbers of mechanical engineers are employed in the following industries: electrical power, electronics, automotive, chemical, petroleum production and refining, and many others.

The above list of industries could be extended to include virtually every industry; thus it is extremely important that mechanical engineering students are trained to deal effectively with general engineering problems. Adequate courses in the humanities, social consciousness, and communications are provided throughout the four years, to insure the development of a well-rounded individual who is capable of assuming a responsible position in society.

Basic engineering drawing courses provide a contact with engineering work during the first year and are given so as to thoroughly familiarize the student with graphical communication. Theoretical and laboratory instruction are provided to give a fundamental knowledge of machine tools and production methods.

Courses in mechanisms, statics, mechanics of materials, kinetics, dynamics, machine design, thermodynamics, and other technical courses provide an opportunity to apply the basic fundamental mathematics, physics, and chemistry. A sufficient amount of electrical engineering is given in the third and fourth years to enable the student to handle engineering operations involving electrical problems. The course in thermodynamics provides a fundamental background in heat power.

Well-equipped laboratories are provided to supplement classroom instruction and to furnish a means of teaching experimental methods. The student is provided with the opportunity to observe phenomena and seek explanations, to test theories, to note contradictions, and interpret results. An opportunity is also provided for the student to become familiar with the test codes of recognized national societies.

The curriculum is highly technical, yet sufficiently broad to meet the requirements of industry and society. The young graduate ordinarily enters a manufacturing or operating organization, where opportunity is provided for his development in research, design, operation, sales, or administration, depending upon his interests and his aptitudes.

A student who desires a broader training in the liberal arts than is provided in the regular four-year curriculum may take a combined bachelor of science and mechanical engineering course. By a careful selection of electives and proper sequence of registration, both degrees may be earned in five years.

FIRST YEAR MECHANICAL ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 15—Calculus	4	Math. 116—Calculus	4
Chem. 1—General Chem.	4	Chem. 2—General Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
M.E. 20—Graphics	3	Physics 11—General Physics	4
Phys. Ed. 1—General Program	1	Phys. Ed. 2—General Program	1
Mil. Sci. 1 or Air Sci. 1	2	Mil. Sci. 2 or Air Sci. 2	2
	17		18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Math. 117—Calculus	4	Math. 253—Adv. Math.	3
Physics 102—General Physics	4	Humanities 2	4
T.A.M. 101—Statics	3	T.A.M. 102—Mech. of Materials I	3
Humanities 1	4	T.A.M. 104—Dynamics	3
Mil. Sci. 3 or Air Sci. 3	2	Physics 124—Intro. to Mod. Physics	4
		Mil. Sci. 4 or Air Sci. 4	2
	17		19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
T.A.M. 103—Mech. of Materials II	3	E.E. 205—Electrical Fund.	4
I.E. 100—Mfg. Processes	3	C.E. 115—Fluid Mechanics	3
E.E. 105—Electrical Fund.	4	M.E. 112—Dynamics of Mach.	3
M.E. 109—Mechanisms	2	M.E. 125—Thermodynamics	3
M.E. 120—Thermodynamics	3	M.E. 126—Graphics II	2
English 126—Technical Writing *OR* Speech 11—Public Speaking	3	M.E. 132—Mech. Lab.	2
	18		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 201—Design of Mach. Members	3	M.E. 203—Machine Design	3
M.E. 228—Mech. Lab.	1	I.E. 244—Statistics *OR*	
M.E. 230—Heat Transmission	3	I.E. 287—Eng'g. Economy	3
Mat.E. 250—Materials Science	3	Technical electives	6
Technical elective	3	Non-technical electives	6
Non-technical electives	6		
	19		18

NOTE: Six hours of technical electives must be taken from Mechanical Engineering courses.

The School of Mines

CURRICULA IN THE SCHOOL OF MINES

The following engineering curricula are offered in the School of Mines.

1. A four-year curriculum leading to the degree Bachelor of Science in Engineering of Mines.

2. A four-year curriculum leading to the degree Bachelor of Science in Petroleum Engineering.

3. A combined science and engineering curricula leading to the degree of Bachelor of Science and Bachelor of Science in Engineering of Mines or Bachelor of Science in Petroleum Engineering.

In the four-year curricula the first two years of instruction are alike. During this period the student is given a thorough grounding in mathematics, physics, chemistry, English composition, and geology, as well as an introduction to history and economics. During the third and fourth years the student is given instruction in the engineering sciences as well as in the professional subjects pertaining to mining engineering and petroleum and natural gas engineering. Also, studies in the humanities are continued with the student being permitted to elect a reasonable proportion of the subjects to be studied.

CURRICULUM IN ENGINEERING OF MINES

Degree: Bachelor of Science in Engineering of Mines

Mining Engineering deals with discovering, extracting, beneficiating, marketing, and utilizing minerals from the earth. The role of the mining engineer is quite diversified and there are opportunities for technical specialization in prospecting, development, production, beneficiation, utilization, and marketing. Therefore, the mining engineer must be well trained in the fields of mining and geology and also in the principles of civil, electrical, and mechanical engineering as applied to the mining industry. With the present trend toward the use of engineers in industrial management and administrative positions, the mining engineer's training must also include economics, business, personnel management, and the various humanities.

In this curriculum professional study includes geology and the engineering principles of blasting, materials handling, transportation, hoisting, water control, surface and underground systems of mining, roof control, ventilation, mineral preparation, and plant design. Special consideration is given to the application of mining machinery with particular attention to power transmission and electric and hydraulic control systems.

Special courses in the design of surface and underground mining installations give the student opportunity for using the engineering principles developed in preceding phases of the course as well as for specialization. The student receives an introduction to the management and social aspects through courses devoted to economic, social, governmental, labor, financial, and safety problems incident to the operation of a mining enterprise.

In the fourth year the student may specialize in coal mining, ore mining, or other phases of mining engineering by proper selection of design problems and electives. He will be assigned an adviser who will assist him in this phase of the program.

Local coal fields, mines, and preparation plants are used extensively for experimental, instructional, and field work.

FIRST YEAR ENGINEERING OF MINES

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
E.M. 1—Freshman Orientation	0	Math. 116—Calculus	4
Math. 15—Calculus	4	Geol. 1—Physical Geology	3
Hist. 1—World Civilization	3	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		
*Math. 14—Introductory Math.	2		
	19		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Physics 11—General Physics	4	Physics 102—General Physics	4
Math. 117—Calculus	4	Math. 253—Adv. Appl. Math.	3
Hist. 2—World Civilization	3	T.A.M. 101—Statics	3
E.M. 106—Mineralogy	2	Econ. 2—Principles	3
Econ. 1—Principles	3	Chem. 163—Physical Chemistry	4
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	18		19

SUMMER

E.M. 102—Mine Surveying (5 weeks) 5

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 121—Thermo. of Eng'g.	3	E.M. 209—Mineral Prep.	3
Physics 124—Intro to Mod. Physics	4	E.E. 105—Electrical Fund.	4
English 127—Intro. to Lit.	3	English 128—Intro. to Lit.	3
C.E. 115—Fluid Mechanics	3	T.A.M. 102—Strength of Materials	3
T.A.M. 104—Dynamics	3	I.E. 244—Eng'g. Statistics	3
E.M. 108—Fund. of Mining	4	**Non-technical elective	3
	20		19

*Only if necessary for entrance to Math. 15.

**Non-technical electives must be selected from the following fields: Art, Classics, English and American Literature, Humanities, Music, Philosophy, Economics, History, Psychology, Political Science, Sociology.

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
M.E. 230—Heat Transfer	3	E.M. 112—Mine Plant Design	3
E.E. 205—Electrical Fund.	4	E.M. 220—Mine Design	3
E.M. 212—Advanced Mining	3	E.M. 222—Mine Equip. and Mach.	3
E.M. 213—Mine Ventilation	3	E.M. 223—Mine Management	3
E.M. 241—Mechanics of Ground Control in Mines	3	Mat.E. 250—Elements, Mat. Sci. Eng'g.	3
***Technical elective	3	G. 100—Inspection Trip	0
		**Non-technical elective	3
	19		18

***Students wishing to specialize in coal mining may do so by electing E.M. 217, Coal Preparation, and selecting a coal mining design problem in E.M. 220, Mine Design.

Students wishing to specialize in ore mining may do so by electing E.M. 218, Advanced Mineral Preparation, and electing an ore mining design problem in E.M. 220, Mine Design.

RECOMMENDED TECHNICAL ELECTIVES

E.M. 215—Indus. Safety Engr. 2
E.M. 217—Coal Preparation 3
E.M. 218—Adv. Mineral Prep. 3
E.M. 219—Adv. Mining Methods for Vein Deposits 3
E.M. 224—Mining Eng'g. Problems 1 to 3
E.M. 228—Mine Equip. & Machine Controls 3
E.M. 229—Adv. Mine Equip. Appl. .. 3
E.M. 230—Elements of Geop. Prosp. ..... 3 or 4
E.M. 234—Applied Geophysics 3
C.E. 275—Reinforced Concrete 3
G. 190—Law for Engineers 3
I.E. 140—Motion & Time Study 3
T.A.M. 103—Mech. of Materials 3
Econ. 115—Labor Problems 3
Geol. 151—Struct. Geology 3
Geol. 275—Coal Geology 4
Manag. 217—Personnel Management .. 3

CURRICULUM IN PETROLEUM ENGINEERING

Degree: Bachelor of Science in Petroleum Engineering

Petroleum engineering deals with the discovery, production and transportation of oil and natural gas. Consequently, the petroleum engineer must be soundly grounded in the principles of geology as related to the occurrence, discovery, and production of natural gas and petroleum. In this curriculum this training is obtained by the study of geology as well as by the geological principles developed in the courses relating to oil field development and production. In addition, the petroleum engineer must be well grounded in the principles of oil and gas production as well as in the technology of transportation. This training may be obtained in the several courses pertaining to petroleum technology and in natural gas engineering and distribution as well as the courses given in the engineering and basic sciences and mathematics. Today, there is a strong trend towards employing the petroleum engineer as supervisors, managers, and executives. Education for this aspect of his career is provided by the courses in property evaluation, oil and gas law, as well as in economics and the humanities. In the senior year electives are provided by use of which the student may obtain additional training in geology or geophysics or in management of supervisory skills or in some special phase of petroleum and natural gas technology. Assistance in this phase of the program will be given by an adviser assigned to the student for this purpose.

The School is particularly fortunate in that West Virginia is a petroleum and natural gas producing state and as a result local production and gas storage fields, secondary recovery projects, compressor stations and refineries provide excellent opportunity for field study of petroleum engineering problems, techniques, and methods. The petroleum laboratories of the School are well equipped for laboratory study of gas measurement apparatus, for core analysis as well as for the study of drilling muds and for study of and experiments on drilling and pumping machinery.

FIRST YEAR PETROLEUM ENGINEERING

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1—Inorganic Chem.	4	Chem. 2—Inorganic Chem.	4
English 1—Comp. and Rhet.	3	English 2—Comp. and Rhet.	3
E.M. 1—Freshman Orientation	0	Math. 116—Calculus	4
Math. 15—Calculus	4	Geol. 1—Physical Geology	3
Hist. 1—World Civilization	3	Mil. Sci. 2 or Air Sci. 2	2
Mil. Sci. 1 or Air Sci. 1	2	Phys. Ed. 2—General Program	1
Phys. Ed. 1—General Program	1		
	17		
*Math. 14—Intro. Math.	2		
	19		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Physics 11—General Physics	4	Physics 102—General Physics	4
Math. 117—Calculus	4	Math. 253—Adv. Applied Math.	3
Hist. 2—World Civilization	3	T.A.M. 101—Statistics	3
E.M. 106—Mineralogy	2	Chem. 163—Physical Chemistry	4
Econ. 1—Principles	3	Econ. 2—Principles	3
Mil. Sci. 3 or Air Sci. 3	2	Mil. Sci. 4 or Air Sci. 4	2
	18		19

SUMMER

E.M. 102—Mine Surveying (5 weeks) 5

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
T.A.M. 104—Dynamics	3	Pet.E. 106—Oil & Gas Field Dev. and Production	4
Physics 124—Modern Physics	4	English 128—Intro. to Literature	3
English 127—Intro. to Literature	3	T.A.M. 102—Mech. of Materials	3
E.E. 105—Electrical Fundamentals	4	M.E. 121—Thermodynamics	3
C.E. 115—Fluid Mechanics	3	E.E. 205—Electrical Fundamentals	4
Geol. 151—Structural Geology	3	Pet.E. 236—Mech. of Hydrocarbon Fluids	3
	20		20

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Mat.E. 250—Element of Mat. Sci. Eng'g.	3	Pet.E. 203—Petro. Prop. Val.	2
I.E. 244—Engineering Statistics	3	Pet.E. 237—Comp. & Prop. of Oil Well Drilling Fluids	2
M.E. 230—Heat Transfer	3	Pet.E. 216—Pet. Engr. Design	3
Pet.E. 323—Pet. Reservoir Eng'g.	5	Pet.E. 235—Fund. of Well Logging	3
Pet.E. 206—Natural Gas Eng'g.	3	G-100—Inspection Trip	0
		Technical Electives	3
		**Non-technical electives	6
	17		19

*Only if necessary for entrance to Math. 15.

**Non-technical electives must be selected from the following fields: Art, Classics, English and American Literature, Humanities, Music, Philosophy, Economics, History, Psychology, Political Science, and Sociology.

Recommended Technical Electives

E.M. 207—Introductory Seismology	1	Pet.E. 240—Sec. Recovery of Oil by Water Flooding	3
E.M. 214—Mine Val., Cost Control and Economics	3	T.A.M. 103—Mech. of Materials	3
E.M. 215—Ind. Safety Eng'g.	2	Geol. 2—Phys. Geol. Lab.	1
E.M. 230—Elem. of Geop. Prosp.	3 or 4	Geol. 161—Field Geology	3
E.M. 234—Applied Geophysics	3	Geol. 170—Nat. Res. & Geol. of West Virginia	2 or 3
Pet.E. 238—Oil & Gas Law	2	Geol. 272—Petroleum Geology	3

FIVE-YEAR CURRICULA

Degree: Bachelor of Science in conjunction with a degree in engineering.

These curricula are designed to meet the needs of students who wish to receive a broader training than is provided in the four-year program. They also enable the student to take lighter schedules than are required in the four-year curricula.

(A) Requirements for the degree of Bachelor of Science, to be conferred at the end of the fourth year, where the student's grade-point average is 2.5 or over, or at the time of the conferring of the engineering degree where the grade-point average is below 2.5.
  (1) The requirements of the first three years of any four-year engineering curriculum.
  (2) a. Twelve semester hours of one foreign language, where no secondary school entrance credits have been allowed, or
  b. Six semester hours at intermediate level, where two units of entrance credits have been allowed in the same foreign language.
  (3) Electives from the following groups, amounting to six semester hours where (2a) applies and twelve semester hours where (2b) applies.
  a. Not more than three hours each of English, history, and speech.
  b. Not more than six hours each in any one or more than the following groups: foreign language (other than specified above); journalism; commerce, political science; and philosophy, psychology, and sociology.

(B) Requirements for the Bachelor of Science degree in engineering or mining or petroleum engineering, to be conferred on completion of the work of the fifth year.

GRADUATE CURRICULA

Graduate work leading to the degree of Master of Science in Engineering is offered in all departments. In certain departments courses leading to the degree of Doctor of Philosophy are also offered. The student who plans to pursue graduate work is directed to the courses as outlined in the *Announcements* of the Graduate School. Seniors within ten semester hours of graduation may petition the Dean of the Graduate School and receive credit towards a Master's degree for work taken beyond the requirements for a Bachelor's degree.

SPECIAL ENGINEERING CURRICULA

1. *Elective Groups for Students in Other Colleges.* Candidates for degrees other than engineering degrees, and special students in any department of the University, are permitted to elect subjects in the College of Engineering and the School of Mines, provided, in each case, they have had the subjects specified as prerequisites. Students who wish to take a general classical or scientific course of study before taking the engineering curriculum are advised to carry their mathematics as far as called for by the engineering curriculum, and to take some elective work in the College of Engineering or the School of Mines.

2. *Partial Curriculum.* Students who have not the time or are otherwise unable to take the full curriculum will be allowed to take a special or partial curriculum. consisting of such studies as they are prepared to take, provided such curriculum shall have been approved by the adviser. For information as to requirements for admission of special students, see page 72.

PROFESSIONAL DEGREES

The University confers the following professional degrees: Aerospace Engineer (A.E.), Chemical Engineer (Ch.E.), Civil Engineer (C.E.), Electrical Engineer (E.E.), Mechanical Engineer (M.E.), Engineer of Mines (E.M.), and Petroleum Engineer (Pet.E.).

The professional degree is conferred upon graduates of the College of Engineering and of the School of Mines of West Virginia University on the basis of practical experience and study in absentia, the presentation of a thesis, and oral final examination.

To be eligible, a candidate for a professional degree must have been in active practice of his profession for at least five years since receiving his first degree, and must have been in responsible charge of important work at least two years.

Application for registration as a candidate for a professional degree should be made not later than October 1 in the academic year in which the degree is desired.

Courses of Instruction*

AEROSPACE ENGINEERING

Professor Squire; Associate Professor Ulrich; Assistant Professor Porter; Instructors Cunard and Walters.

Undergraduate Division

A.E.

116. Introduction to Flight Vehicles. 3 hr. PR: M.E. 20, Physics 102, and/or conc: Math. 253. Discussion of flight vehicles of the past, present, and future. An introduction to the methods of graphical communication, production, and fabrication used in the aerospace industry. Solution of aerospace problems by graphical, digital, and analog methods. 2 hr. lec., 3 hr. lab.

201. Fluid Dynamics I. 4 hr. PR: Math. 253; or conc: M.E. 120, A.E. 116. Standard atmosphere, thermodynamics of fluid flow, types of fluid motion, airfoils, wings, drag, heat transfer through boundary layers, introduction to flight vehicle performance. 4 hr. lec.

202. Fluid Dynamics III. 3 hr. PR: Math. 253, A.E. 201. Steady flow of incompressible and compressible fluids. Stream functions and potential theory of two dimensional ideal flows. Flow equations in vector notation. Conformal transformations and airfoil development. Viscous and three dimensional effects on ideal flows. Two and three dimensional vortex flows. 3 hr. lec.

203. Applied Aerodynamics. 3 hr. PR: A.E. 209. Chordwise and spanwise airload distribution for plain wings, wings with aerodynamic and geometric twist, wings with deflected flaps, and wings with ailerons deflected. Section induced drag characteristics. 3 hr. lec.

205. Experimental Fluid Dynamics. 2 hr. PR: A.E. 223. Subsonic and supersonic wind tunnel testing methods and practice. Experiments include the following measurements: pressure distribution on bodies, boundary layer determination, turbulence measurements, force tests, and stability and performance determinations. Corrections for scale and jet boundary effects. Data collection. Data reduction by digital computer. Test design, data analysis, and engineering report preparation. 1 hr. lec., 3 hr. lab.

207. Flight Vehicle Design. 3 hr. PR: A.E. 209. Preliminary design of flight vehicles. Vehicles are designed with regard for performance and stability requirements, considering aerodynamics, weight and balance, structural arrangement, configuration, guidance, and propulsive effects. Layout drawings and calculations are combined in a preliminary design report. 1 hr. lec., 6 hr. lab.

208. Flight Testing. 2 hr. PR: A.E. 209. Flight test theory and practice. Stability and performance determination based on flight test of Cessna 182 airplane. Flight test data reduction practice. 1 hr. lec., 3 hr. lab.

209. Flight Mechanics. 3 hr. PR: A.E. 201. Performance estimation with emphasis on fixed wing aircraft. Fundamental concepts of stability and control of aircraft. 3 hr. lec.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

210. Flight Vehicle Structures I. 3 hr. PR: T.A.M. 103. Design of elementary structural forms, truss analysis and use of thin sheet in aero-space vehicles. Deflections by Virtual Work. Least Work and Williot Diagram. 3 hr. lec.

211. Flight Vehicle Structures II. 3 hr. PR: A.E. 210 or equiv. Continuation of A.E. 210. Analysis and design of statically indeterminate structures used in flight vehicles. Emphasis on achieving high strength/weight ratios. 3 hr. lec.

212. Design of Flight Structures I. 3 hr. PR: A.E. 207, 211. Structural design of flight vehicle members. Layout and detail design of specified components are required. 1 hr. lec., 6 hr. lab.

213. Experimental Flight Vehicle Structures. 1 hr. PR: A.E. 211. Strength tests of flight vehicle materials, center of gravity determination, static test of components, bending and torsion of shell structures, compression tests of thin-walled structures. 3 hr. lab.

217. Design of Flight Structures II. 3 hr. PR: T.A.M. 103. Analysis and detail design of simple fittings, beams, welded structures, forgings, castings. Methods of production and fabrication. 1 hr. lec., 6 hr. lab.

218. Aeroelasticity. 3 hr. PR: A.E. 210. The study of vibrating systems of single degree and multiple degrees of freedom, flutter theory and modes of vibration, torsional divergence and control reversal. 3 hr. lec.

219. Introduction to Research. 1-3 hr. PR: Senior standing and consent. An introduction to the methods of organizing theoretical and experimental research. Formulation of problems, project planning, and research proposal preparation.

220. Research Problems. 2-6 hr. PR: A.E. 219. Performance of the research project as proposed in A.E. 219. Project results are given in written technical reports, with conclusions and recommendations.

223. Fluid Dynamics II. 3 hr. PR: A.E. 201, M.E. 120. Analysis of one dimensional compressible flows including effect of friction and heat transfer. Normal and oblique shock waves. Variable area flow. Introduction to multi-dimensional flow covering linearized theory and method of characteristics. 3 hr. lec.

224. Flight Vehicle Propulsion. 3 hr. PR: A.E. 223. Application of thermodynamics and gas dynamics to combustion. Turbine cycles with emphasis on turboprop and turbojet propulsion. Ramjets. Rocket propulsion by chemical, nuclear and electrical systems. Propulsion of staged vehicles. 3 hr. lec.

225. Guided Missile Systems. 3 hr. PR: A.E. 223, and/or conc: A.E. 224. Design philosophy according to mission requirements. Preliminary configuration and design concepts. Aerodynamic effects on missiles during launch and flight. Ballistic missile trajectories. Stability determination by analog simulation. Performance determination by digital and analog simulation. Control, guidance, and propulsion systems. Operational and reliability considerations. 3 hr. lec.

226. Fluid Dynamics IV. 3 hr. PR: A.E. 223. Shock tube theory and applications. Introduction to kinetic theory, the calculation of viscosity and thermal conductivity. Fundamentals of hypersonic flow and the determination of minimum drag bodies. 3 hr. lec.

*258. Space Mechanics. 3 hr. PR: Math. 253, T.A.M. 104. An introduction of flight in and beyond the earth's atmosphere by space vehicles. The laws of Kepler and Orbital theory. Energy requirements for satellite and interplanetary travel. Exit from and entry into an atmosphere. 3 hr. rec.

280. Aerospace Problems. 1-3 hr. Upper division and graduate.

299. Thesis. 2-6 hr. PR: Senior standing and permission.

Graduate Division

351. Dynamics of Viscous Fluids. 3 hr. PR: A.E. 202. Exact solutions of the Navier-Stokes equations. Laminar boundary layer theory covering similarity solutions and integral methods. Introduction to turbulent flow. 3 hr. lec.

352. Internal Aerodynamics 3 hr. PR: A.E. 223. Systematic and comprehensive treatment of the flow characteristics of diffusers in general and inlet diffusers in particular. Diffuser with the normal shock; flow process and efficiency in one dimensional analysis. Diffusers with variable geometry, and diffusers with external compression. Spike diffusers and subcritical and near critical non-stationary flow process (buzz frequency and intensity). 3 hr. lec.

353. Advanced Fluid Dynamics. 3 hr. PR: A.E. 202. Advanced usage of complex variables, conformal transformation, and stream functions. Extension to three dimensional steady flow. Green's Theorem, Stokes' Theorem, and application of vector notation and methods. Subsonic and supersonic flow. Flow about two and three dimensional bodies by slender body and small-perturbation theory. Similarity rules of high speed flow. Hodograph solutions. 3 hr. lec.

354. Advanced Flight Mechanics. 3 hr. PR: A.E. 209, 223. Dynamic stability. Obtaining flight characteristics of the vehicle from dynamic flight test techniques, such as frequency response, and transient response methods. The problems of automatic control. 3 hr. lec.

355. Gas Dynamics. 3 hr. PR: A.E. 223. Nonsteady gas dynamics and shock tube theory. Applications of shock tubes in aero-space research. Compressible flow theory in the subsonic, transonic and supersonic regime. 3 hr. lec.

356. Fluid Flow Measurements. 3 hr. PR: A.E. 205, 223. The principles and measurements of static and dynamic pressures and temperatures, velocity and Mach number, forces. Optical techniques and photography. Design of experiments. Review of selected papers from the literature. 2 hr. lec., 3 hr. lab.

357. Special Problems. 2-4 hr. PR: Consent. A course for graduate students in the non-research program. The student will select a specialized field and follow a course of study in that field under the supervision of a counselor.

358. Space Mechanics. 3 hr. PR: Math. 245; A.E. 223, 224. Variational formulation of mechanics. Theory of orbits and trajectories with applications to astronautical problems. Introduction to the space environment of the solar system. 3 hr. lec.

359. Aerodynamic Heating. 3 hr. PR: Math. 253, A.E. 351, or M.E. 330. Extension of the analysis of laminar and turbulent boundary layer theory to include compressibility and real gas effects. Slip flow and free molecular flow. Application to high speed vehicles. 3 hr. lec.

372. Advanced Aeroelasticity. 3 hr. PR: A.E. 218. Deformation of structures under static and dynamic loads, flutter of straight and swept wings, disturbed motion of an elastic model, dynamic response in gusts and landings, the aeroelastic model theory. 3 hr. lec.

373. Dynamic Loads. 3 hr. PR: A.E. 218. Dynamics of a particle, lift distribution during accelerated maneuvers, beam bending and torsion with unsteady loads, empennage loads during dynamic flight conditions, landing impact loads. 3 hr. lec.

374. Materials and Theories of Failure. 3 hr. PR: A.E. 211. Failures in simple stress states, combined stress states; method of fatigue failures, minimum weight structures, evaluation of material to resist design load condition 3 hr. lec.

375. Advanced Flight Vehicle Structures. 3 hr. PR: A.E. 211. Incomplete tension fields, critical loads, torsional column failure, instability of flat sheets, cylindrical structure, special methods of analysis. 3 hr. lec.

397. Research. 1-6 hr. Advanced research or special investigations on some topic relating to aero-space engineering.

AVIATION

Associate Professor Ulrich; Flight Instructors Bennett, Mood, and Wolfe.

NOTE: A.E. 171 and 172, or A.E. 172 and 173, or A.E. 171, 172, and 173, may be taken concurrently by consent.

*170. Aviation Ground School. 0-2 hr. Nomenclature of aircraft, civil air regulations, navigation, meteorology, aircraft and aircraft engines. This course serves as preparation for the private pilot written examination.

*171. Flight Training. 0-1 hr. PR or conc: A.E. 170. Primary flight instruction. First course in a sequence leading toward an F.A.A. private pilot certificate. Twenty hours of flight training in Cessna airplanes. Special flight fee $100, payable at Registration.

*172. Flight Training. 0-1 hr. Continuation of A.E. 171. Twenty hours of flight training. Special flight fee $100, payable at Registration.

*173. Flight Training. 0-1 hr. Continuation of A.E. 172. Twenty hours of flight training. Special flight fee $100, payable at Registration.

*181. Advanced Flight Training. 0-1 hr. Advanced flight instruction with emphasis on cross-country, night and instrument flying. Twenty hours of flight training. Special flight fee $100, payable at Registration.

*182. Advanced Flight Training. 0-2 hr. Advanced flight instruction with emphasis on cross-country, night and instrument flying. Forty hours of flight training. Special flight fee $200, payable at Registration.

AGRICULTURAL ENGINEERING

Undergraduate Division

Ag.E.

10. Principles of Agricultural Engineering. 3 hr. PR: Math. 4. A general course introducing the several fields of agricultural engineering and how they are applied in agriculture and industry. 3 hr. rec.

100. Farm Structures. 3 hr. PR: T.A.M. 102. Structural design and functional requirements of farm service buildings. 2 hr. rec., 3 hr. lab.

180, 181. Assigned Topics. 1-3 hr. per semester.

190. Farm Machinery. 3 hr. PR: M.E. 201. Construction, operation, adjustment, and testing of farm machines. 2 hr. rec., 3 hr. lab.

200. Seminar. 1 hr. PR: Senior standing.

210. Application of Electricity to Agriculture. 3 hr. PR: E.E. 106. Economic application of electric light, heat, and power. 2 hr. rec., 3 hr. lab.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

220. Agricultural Process Engineering. 3 hr. PR: C.E. 115, M.E. 121. Application of the fundamentals of engineering to agricultural engineering processes. 2 hr. rec., 1 hr. lab.

230. Farm Power. 4 hr. PR: M.E. 121. Fundamental theories underlying design and operation of internal combustion engines used in agriculture. 3 hr. rec., 3 hr. lab.

240. Hydrology. 3 hr. PR: C.E. 115. The study of a hydrologic cycle with emphasis on precipitation and runoff as related to design of hydraulic structures, soil and water conservation, and flood control. 3 hr. rec.

250. Soil and Water Conservation. 3 hr. PR: C.E. 115. Engineering principles and practices in conservation, utilization, and management of soil and water resources. 2 hr. rec., 3 hr. lab.

Graduate Division

320, 321. Special Topics. 1-6 hr. (For the Master's Degree, Special Topics ordinarily may count 2 to 4 hr.; maximum credit, 6 hr.).

397. Research. 1-6 hr.

CHEMICAL ENGINEERING

Professors Simons, Fairbanks, P. R. Jones, and Kent; Associate Professors Galli and Wen; Assistant Professors Harper and Mahoney; Instructor Boyle.

Undergraduate Division

Ch.E.

*140. Chemical Engineering Calculations. 2 hr. PR: Chem. 2 and Math. 3. Industrial stoichiometry; industrial calculations involving material and energy balances. 2 hr. rec.

201. Chemical Engineering Fundamentals. 3 hr. PR: T.A.M. 101, T.A.M. 104, Math. 253. Review of vector and tensor algebra; viscosity; method of shell balances; equations of continuity, motion, and energy; Navier-Stokes equation; turbulent flow; flow through porous media; microscopic momentum balances; boundary layer; heat conduction in solids; convective heat transfer; boiling and condensation; radiation; diffusion of mass; film and penetration theory; analogies among heat, mass, and momentum transfer. 3 hr. rec.

202. Chemical Engineering Fundamentals. 3 hr. Continuation of Ch.E. 201. 3 hr. rec.

205. Principles of Chemical Engineering. 5 hr. PR or conc: Chem. 260. Fundamentals and application of the unit operations of chemical engineering. 2 hr. rec., 6 hr. computation lab.

206. Chemical Engineering Operations. 3 hr. PR or conc: Ch.E. 202 and Math. 253. Application of fundamental theory to the design, performance and operation of chemical process equipment. 1 hr. rec., 6 hr. computation lab.

207. Principles of Chemical Engineering. 5 hr. Continuation of Ch.E. 205. 3 hr. rec., 6 hr. computation lab.

208. Chemical Engineering Operations. 3 hr. PR: Ch.E. 206. Continuation of Ch.E. 206. 1 hr. rec., 6 hr. computation lab.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

210. Process Engineering. 3 hr. PR: Ch.E. 208. Process equipment calculations for unsteady state. Determination of maximum and minimum process conditions. Economics of processing methods. 3 hr. rec.

211, 212. Chemical Engineering Laboratory. 2 hr. PR: Ch.E. 207. Experimental work in the unit operations; practice in writing engineering reports. 6 hr. lab.

224. Process Development. 3 hr. PR: Chem. 238 and 261, Ch.E. 202, 206, and 243. Development of process systems from the unit operations-unit process concept. Use of thermodynamics and kinetics in the evaluation of system requirements and performance. 3 hr. rec.

242. Chemical Engineering Thermodynamics and Kinetics. 3 hr. PR: Chem. 261. Material and energy balances; internal energy levels; statistical distributions and statistical evaluation of thermodynamic functions; empirical evaluation of thermodynamic functions; second law of thermodynamics; thermodynamic properties of solutions and solid phases; chemical and physical equilibria. Kinetics of simple and complex chemical reactions; development of rate equations. Kinetics of vapor phase-catalytic reactions; development of rate equations and mechanisms of reactions; backmixing. 3 hr. rec.

243. Chemical Engineering Thermodynamics and Kinetics. 3 hr. Continuation of Ch.E. 242. 3 hr. rec.

*248. Statistical Design of Experiments. 2 hr. PR: Math. 253 or consent. Development of the principles of factorial design based on selected observations. Other design procedures such as confounding, composite design and evolutionary operations, with applications to chemical engineering and related fields. Evaluation of the factors affecting systems, development of factor interrelations and the nature of interactions. Determination of optimum conditions. Computing technics. 2 hr. rec.

272. Chemical Engineering Design. 3 hr. PR: Ch.E. 207, T.A.M. 102. Design of process equipment from economic, chemical and engineering considerations. Study of plant location and layout. 2 hr. rec., 3 hr. lab.

273. Chemical Engineering Design. 3 hr. Continuation of Ch.E. 272. 2 hr. rec., 3 hr. lab.

280. Chemical Engineering Problems. 1-6 hr. For junior, senior, and graduate students.

283. Process Dynamics. 3 hr. PR: Math. 253, Ch.E. 207. Introduction to automatic control and control loop concepts, measurement of variables, dynamic properties of instruments, process response, discussion of controller types, derivation of equations for first and second order control systems, derivation of equations for first and second order process, transient analysis of process and control systems, use of analog computer for process simulation and solution of differential equations. 3 hr. rec.

284. Industrial Instrumentation and Control. 3 hr. PR: Math. 108. Discussion of process characteristics, theory and application of measuring means. Theory, modes and application of automatic control. Selection and characteristics of final control elements. 3 hr. rec.

297. Thesis. 2-5 hr. A problem in chemical engineering or industrial chemistry is selected for investigation. A carefully prepared report is required. Open only to qualified seniors. 6-15 hr. lab.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

Graduate Division

300. SEMINAR. 1-6 hr. Hours to be arranged.

302. ADVANCED HEAT TRANSFER. 2-5 hr. PR: Ch.E. 207, 243, Math. 253. Theory of steady and transient conduction, radiation heat transfer, dimensional analysis and analogy, natural convection, forced convection, heating and cooling inside and outside tubes, finned tubes and compact heat exchangers, packed and fluidized system heat transfer, heat transfer in condensing vapor, heat transfer in boiling liquids and evaporation, high velocity flow heat transmission, application to process heat transfer and design. 3 hr. rec., 0-6 hr. lab.

304. ADVANCED MASS TRANSFER. 2-5 hr. PR: Ch.E. 207, 243, Math. 253. Theory of diffusion, interphase mass transfer theory, simultaneous mass and heat transfer, principles of design, equipment survey, mechanical operations, mass transfer performance, scale-up practices, mass transfer in solid-gas and solid-solid phases, liquid-liquid extraction. 3 hr. rec., 0-6 hr. lab.

306. ADVANCED FLUID DYNAMICS. 2-5 hr. PR: Ch.E. 207, 243, Math. 253. Vector and tensor analysis, differential equations of fluid flow, flow of nonviscous fluid, laminar flow, turbulent flow, analogy between fluid momentum, mass and heat transfer, dimensional analysis, the laminar sublayer, flow of fluid past immersed bodies, fluid dynamics of particle suspensions, flow of fluids through porous media, non-Newtonian fluid flow. 3 hr. rec., 0-6 hr. lab.

307. ADVANCED DISTILLATION. 2-5 hr. PR: Ch.E. 207 or Chem. 261. Advanced study of vaporization principles of separation of liquid mixtures, steam, batch, continuous, azeotropic, extractive, and molecular distillation. 3 hr. rec., 0-6 hr. lab.

323, 324. ADVANCED PROCESS DEVELOPMENT. 3 hr. PR: Chem. 238 and 261, Ch.E. 202, 206, 243, and 273. Use of extended and generalized unit process and unit operation concepts; specialized synthetic methods; reaction mechanisms and their effects on equipment design and performance; study of properties, their evaluation, prediction and marketability; industrial toxicology and plant safety. 3 hr. rec.

341. MATHEMATICAL METHODS IN CHEMICAL ENGINEERING. 3 hr. PR: Math. 253. Emphasis is placed upon the formulation of the differential and difference equations, both ordinary and partial, governing chemical engineering operations. Analytic and numerical techniques used for their solutions including transform methods. 3 hr. rec.

344. ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS. 3 hr. PR: Ch.E. 243. Review of thermodynamic transformations, use of Jacobians; advanced applications to chemical and physical equilibria; development and applications of phase rule; equilibria diagrams for nonideal systems; determination and use of activity coefficients; methods of estimating thermodynamic functions; introduction to statistical mechanics. 3 hr. rec.

345. ADVANCED CHEMICAL ENGINEERING KINETICS. 3 hr. PR: Ch.E. 243. Applications of chemical kinetics to individual reactor design; review of physical chemical principles; theories of reactions; design of batch and flow reactors; theories of catalysis; reactor mechanisms; data interpretation; applications to design of catalytic reactors; effects of diffusion on catalytic reactions. 3 hr. rec.

372. ADVANCED CHEMICAL ENGINEERING DESIGN. 2-5 hr. PR: Ch.E. 273. Critical discussion of and practice in equipment-design methods. 2 hr. rec., 0-9 hr. lab.

383. ADVANCED SYSTEMS ENGINEERING. 3 hr. PR: Ch.E. 283, 284. Control systems and the feed-back concept, transfer functions and mathematical analysis of dynamic equations, transient analysis and stability of control systems, fre-

quency response of control system, thermal process dynamics, mass transfer dynamics, chemical process dynamics, use of analog computer for study of system behavior, nonlinear systems and adaptive control, random response and filtering of noise. 3 hr. rec.

397. Research. 1-15 hr. PR: Ch.E. 207, 212. Suitable problem in chemical engineering, nucleonics, or materials science engineering is selected for investigation.

Materials Science Engineering

Mat.E.

*250. Engineering Materials Science. 3 hr. PR: Physics 124 or 125. Includes a study of the internal structures of metals, ceramics, and organic materials and the dependence of properties upon these structures. Also included is the behavior of materials under conditions involving mechanical stresses, thermal reactions, corrosion, electromagnetic fields and radiation. 3 hr. rec.

*254. Principles of Metallurgical Engineering. 3 hr. PR: Physics 112. Includes the theory and physical principles involved in the production of metals from their ores. 3 hr. rec.

*255. Synthetic Materials. 3 hr. PR: Physics 112. Properties, uses and methods of production of synthetic materials such as plastics, elastomers, laminates, lubricants and miscellaneous materials of construction. 3 hr. rec.

*260. Physical Ceramics. 3 hr. PR: Physics 124 or 125. The electronic and crystalline structure of ceramic materials; thermodynamics and kinetics of ceramic systems; the mechanical, chemical, electrical, thermal, and optical properties of ceramic materials and the factors affecting them; processing and utilization of ceramic materials. 3 hr. rec.

*261. Principles of Ceramic Engineering. 3 hr. PR: Mat.E. 260. Identification of the factors affecting the properties of ceramic systems through application of factorial design; the development of empirical equations showing the relationships between the factors; development of optimum conditions. 3 hr. rec.

*265. Materials Science Laboratory. 2 hr. PR: Mat.E. 250, 255, 260. Preparation and pretreatment of engineering materials for photomicrography and physical inspection. 6 hr. lab.

*269. X-Ray Diffraction. 2 hr. The theory of X-ray diffraction and application to the analysis of crystalline materials, using the powder camera and X-ray diffractometer. Open to students in geology, chemistry, engineering, and related fields with permission of the instructor. 1 hr. rec., 3 hr. lab.

*350. Advanced Physical Metallurgy. 3 hr. PR: Mat.E. 250. Includes the principles of crystallization, plastic deformation, precipitation hardening, and the transformation of austenite. 3 hr. rec.

*351. Metallography Laboratory. 3 hr. PR: Mat.E. 250. Includes radiography, photomicrography, recrystallization, and heat treatment of ferrous and nonferrous metals and alloys. 1 hr. rec., 6 hr. lab.

*352. Alloys. 3 hr. PR: Mat.E. 250. Includes the use of the phase rule, binary and ternary constitutional diagrams, and fundamental principles involved in the formation of alloys. 3 hr. rec.

*360. Advanced Physical Ceramics. 3 hr. PR: Mat.E. 261. The mechanical, chemical, thermal, optical, electrical, and magnetic behavior of ceramic materials, together with their evaluation and prediction. 3 hr. rec.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

*361. Ceramics Laboratory. 1 hr. PR: Mat.E. 360. Design of ceramic bodies based on the theoretical behavior; preparation, processing, and measurement of physical properties. 3 hr. lab.

*397. Research. 1-15 hr.

Nuclear Engineering

Nuc.E.

290. Introductory Nuclear Engineering. 3 hr. PR: Physics 112. Includes elementary nuclear physics necessary for understanding nuclear engineering. Design and operation of nuclear reactors, shielding, instrumentation, health physics, fuel cycles, uses of radioactive isotopes, nuclear propulsion. 3 hr. rec.

380. Advanced Independent Study. 1-3 hr. Special studies in fuel reprocessing, shielding, reactor technology, and related areas.

390. Analysis of Nuclear Energy Systems. 3 hr. PR or conc: Physics 225 or equiv., and Physics 287 or equiv. Probability concepts and nuclear cross sections. Multiplication constant and neutron flux. Diffusion theory. Homogeneous reactors: one group theory; multigroup theory. Heterogeneous reactors. Reflected reactors. Reactor kinetics. Control rod theory. Special considerations in analysis of hydrogeneous systems. 3 hr. rec.

391. Principles of Nuclear Reactor Engineering. 3 hr. PR: Nuc.E. 390. Thermal analysis of reactor systems. Shielding. Fuel element design. Reactor poisons. Instrumentation. Economics of nuclear systems. Radiation protection. Legal aspects. Radioactive waste disposal. 3 hr. rec.

392. Interaction of Radiation and Matter. 3 hr. PR or conc: Physics 225. Radiation damage models, effects of nuclear radiations on reactor components and other materials, experimental techniques. Industrial applications: process control, polymerization, sterilization, pasteurization. 3 hr. rec.

393. Nuclear Laboratory. 3 hr. PR or conc: Nuc.E. 390 or equiv. Techniques of radiation measurements. Determination of neutron properties; diffusion length, albedo, etc. Exponential reactor parameters. Reactor simultation. Experiments with swimming pool reactor and cobalt-60 radiation facility. Dosimetry. 1 hr. rec., 6 hr. lab.

397. Research. 1-15 hr.

CIVIL ENGINEERING

Professors Baker, Burchinal, Linsky, and Schaub; Associate Professors Kemp and Moh; Assistant Professors Carter and Jenkins; Instructors Moulton, Ruth, Bonasso,† Denton,† Fang,† Hopson,† and Onysko.†

Undergraduate Division

C.E.

*1. Surveying. 2 hr. PR: Math. 4. For non-civil engineering students. Elementary theory of measurement of distance, direction, and difference in elevation. Field work with transit, tape, level, stadia, and plane table. Office computation and plotting. 1 hr. rec., 3 hr. lab.

*2. Surveying. 3 hr. PR: Math. 4. Theory of measurements and errors; introduction to least squares; the terrestial and celestial spheres; figures of the

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

†Part-time.

earth; projections; the characteristics of instruments for measuring distance, direction, and elevation; basic field measurements and office computations. 2 hr. rec., 3 hr. lab.

*5. Land Surveying. 4 hr. PR: Math. 4. Primarily for forestry students. Theory and practice with compass, transit, level, stadia, and plane table; computations of area; astronomical observations; map plotting. 2 hr. rec., 6 hr. lab.

*6. Topographic Mapping. 2 hr. PR: C.E. 5. Primarily for forestry students. Topographic maps; surveys for roads and property lines; U. S. Public Land Surveys; practice in lettering, plotting, and inking of topographic maps. 1 hr. rec., 3 hr. lab.

102. Survey Engineering. 6 hr. PR: Math. 15. Theory of measurement and errors; introduction to least squares; figures of the earth; study of instruments for measuring distance, direction, and elevation including their geometry, accuracy, use, and adjustment; terrestrial and celestial spheres and field astronomy; horizontal and vertical curves; earthwork measurement; triangulation; boundary surveying. The design, execution and testing of field surveys for maps, boundaries and routes; determination of true meridian, calculation of areas.

104. Summer Surveying. (5 weeks). 5 hr. PR: C.E. 2. Further study of surveying instruments, including their geometry, accuracy, use, and adjustments; theory of solar and polaris observations, horizontal and vertical curves, earthwork measurement, triangulation, omitted measurements, and partition of area; the planning and design, the execution, and the testing of surveys for maps, hydrography, boundaries, routes, and construction operations; problems in field astronomy, plane table mapping, and leveling.

*115. Fluid Mechanics. 3 hr. PR or conc: T.A.M. 104. Fluid statics, laminar and turbulent flow of compressible and incompressible fluids, flow measurements, open channel flow, and kinetics of fluids. 3 hr. rec.

*116. Fluid Mechanics Laboratory. 1 hr. PR or conc: C.E. 115. Measurement of the properties and flow characteristics of gases and liquids. Hydraulic machinery. 3 hr. lab.

131. Highway Engineering. 4 hr. PR: C.E. 102 or 104. Highway administration, economics, and finance; planning and design; subgrade soils and drainage; construction and maintenance. Design of a highway. Center line and grade projections, earthwork and cost estimate. 3 hr. rec., 3 hr. lab.

141. Railway Engineering. 3 hr. PR: C.E. 102 or 104. Development and importance of the railroad industry. Principles of location, construction, operation, and maintenance. 3 hr. rec.

145. Water Supply and Sewerage. 5 hr. PR: C.E. 115. Required quantity and quality of water; sources, treatment, pumping, and distribution of water; uniform and nonuniform flow in open channels, rainfall and runoff; design and operation of sewers; sewage treatment. 4 hr. rec., 3 hr. lab.

146. Sanitary Engineering I. 3 hr. PR: C.E. 115. Hydrology as applied to water and waste water systems. Design of water distribution and waste water systems. The study and partial design of water and waste water treatment facilities. 2 hr. rec., 3 hr. lab.

147. Sanitary Engineering II. 3 hr. PR: C.E. 115. Examination of water and waste water, water treatment, waste water treatment and special problems in public health, air pollution and radioactivity. 2 hr. rec., 3 hr. lab.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

160. Structural Analysis I. 5 hr. PR: T.A.M. 101 and 102. Analysis of stresses and deflections in statically determinate structures caused by fixed and moving loads. Study of influence lines and loading criteria for beams, and plane and space framed structures. Application of electronic computer techniques to structural problems. 4 hr. rec., 3 hr. lab.

*170. Structural Engineering. 3 hr. PR: T.A.M. 102. Elements of analysis and design of structures of reinforced concrete, steel, and timber; primarily buildings. 3 hr. rec.

*179. Engineering Materials. 2 hr. PR: T.A.M. 103. Properties and behavior of materials used in engineering. 2 hr. rec.

190. Contracts and Specifications. 2 hr. PR: Senior standing or consent. Elements of contracts; contracting procedures; contract documents; preparation of specifications; legal relations, rights, and responsibilities of engineers. 2 hr. rec.

197. Thesis. 2 to 4 hr. Special design, investigation or original research on an assigned topic relating to Civil Engineering.

210. Photogrammetry. 3 hr. PR: C.E. 102 or 104. Geometry and interpretation of the aerial photograph; flight planning; radial-line control; principles of stereoscopy; plotting instruments. 2 hr. rec., 3 hr. lab.

211. Geodesy. 3 hr. PR: C.E. 102 or 104 and Math. 116. Precise base line measurements, triangulation and leveling, geodetic astronomy; figure of the earth, map projections; rectangular coordinate systems; least squares adjustment; gravity. 3 hr. rec.

221. Engineering Hydraulics. 3 hr. PR: C.E. 115 or concent. Fundamental principles of flow, similitude, flow measurement, water hammer and surging, channel transitions, gradually varied flow, wave motion and sediment transportation. Design of various elements of hydraulic structures. 3 hr. rec.

230. Traffic Engineering. 3 hr. PR: C.E. 131, T.A.M. 104. Principles of traffic operations. The characteristics of drivers, vehicles, and roadways that affect the performance of road systems. Traffic studies relating to origins and destination, accidents, parking, speed, and delays. Consideration of signs, signals, and markings. 3 hr. rec.

231. Concrete and Aggregates. 3 hr. PR: C.E. 131, 179, T.A.M. 103. Considerations and methods for the design of concrete mixes. Effect of air entraining agents and other additives. Studies of the influence of aggregate properties on the design and performance of concrete mixtures. An analysis of the methods of test commonly used for concrete and aggregates and the significance of these tests. 3 hr. rec.

236. Highway Materials Laboratory. 3 hr. PR: T.A.M. 103. Testing of highway materials for compliance with specifications in the State Road Commission's Materials Testing Laboratory. 1 hr. rec., 6 hr. lab.

251. Public Health Engineering. 3 hr. PR: C.E. 145. The engineering aspects involved in the control of the environment for the protection of the health and the promotion of the comfort of man. Discussions will include communicable disease control, milk and food sanitation, air pollution, refuse disposal, industrial hygiene, and radiological health hazards. 3 hr. rec.

252. Water Resources Engineering. 3 hr. PR: C.E. 115. The design of water-resource systems. The interrelationship between economic objectives, engineering analysis and governmental agencies. 3 hr rec.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

260. Structural Analysis II. 3 hr. PR: C.E. 160. An introduction to the fundamental theory of statically indeterminate structures. General theory of continuity and iterative and energy methods applied to the analysis of indeterminate beams and frames. 3 hr. rec.

261. Statically Indeterminate Structures. 3 hr. PR: C.E. 260. Advanced topics in indeterminate structural analysis for trusses and nonprismatic members. 3 hr. rec.

270. Structural Design I. 3 hr. PR or conc: C.E. 260. Theory and design of reinforced concrete members. Design considerations for concrete bridges and buildings. 2 hr. rec., 3 hr. lab.

271. Structural Design II. 3 hr. PR or conc: C.E. 260. Design of steel bridge and building structures. Welded, riveted, and bolted connections; simple and moment-resistant connections; cost estimates. 2 hr. rec., 3 hr. lab.

272. Plastic Design of Steel Structures. 3 hr. PR: C.E. 260 or consent. The fundamental concepts of the plasticity of steel. Analysis of structures for ultimate load. The influence of axial forces, shear forces, and local buckling on the plastic moment. Study of structural connections and deflections. Steel structure design. 3 hr. rec.

273. Prestressed Concrete. 3 hr. PR: C.E. 270. The analysis and design of determinate and indeterminate prestressed beams and frames. 3 hr. rec.

275. Reinforced Concrete. 3 hr. PR: C.E. 160, 170. Theory and design of slabs, beams, columns, footings, retaining walls, and concrete buildings. Introduction to principles of prestressed concrete. 2 hr. rec., 3 hr. lab.

280. Soil Mechanics. 3 hr. PR: C.E. 115, T.A.M. 101. Origins and distribution of soils, classification of soils, fundamental soil properties, and stresses in soils. Subsurface exploration. Introduction to foundations design and the design and construction of earth structures. 2 hr. rec., 3 hr. lab.

281. Foundations Engineering. 3 hr. PR: C.E. 131, 280. Soils exploration and the design and analysis of engineering foundations. Particular emphasis on earth pressures and the design of retaining walls, studies of bracing systems and the elements of shallow and deep foundations for bridges and buildings. Movement of water through soil structures and control of water in excavations. 3 hr. rec.

290. Civil Engineering Problems. 1-4 hr. For junior, senior, and graduate students.

Graduate Division

315. Advanced Fluid Mechanics. 3 hr. PR: C.E. 115. Compressible and noncompressible flow, flow with friction and heat transfer, boundary layer flow, fluid machines, unsteady flow and fluid vibrations. 3 hr. rec.

321. Hydraulic Structures. 3 hr. PR: C.E. 221 or consent. The hydraulic analysis and design of engineering structures such as reservoirs, dams, spillways, gates, and outlet works. The study of hydraulic machinery, irrigation, hydroelectric power, drainage and flood control. 3 hr. rec.

330. Bituminous Materials and Mixtures. 3 hr. PR: C.E. 131, 179. Manufacture and testing of bituminous materials. Significance of tests and specifications of bituminous materials. Principles of the design of bituminous mixtures, including methods of test and the influence of aggregate, temperature, and other variables upon design for stability and durability. Production of bituminous mixtures and construction practice in utilizing these mixtures. 2 hr. rec., 3 hr. lab.

331. Pavement Design. 3 hr. PR: C.E. 131, 280. Effects of traffic, soil, and loads on the design of pavement. Consideration of drainage and climate. Design of bases and sub-bases. Methods of design of flexible and rigid pavements. Performance of pavement surveys. 2 hr. rec., 3 hr. lab.

332. Highway Economics and Administration. 3 hr. PR: Consent. Studies of the considerations involved in the planning of a well-integrated highway system. Highway administration and financial structure. Methods of establishing economic value of highway improvement. Classification of systems and rating of the performance of roads. Estimation of future traffic and highway needs. 3 hr. rec.

333. Geometric Design of Highways. 3 hr. PR: Consent. The theory and practice of the geometric design of modern highways. Horizontal and vertical alignment, cross-slope, design speed, sight distances, interchanges, and intersections are discussed. Critical analysis of design specifications. 2 hr. rec., 3 hr. lab.

334. Urban Problems. 3 hr. PR: Consent. The study of the particular problems of transportation in the urban area as they relate to the general development of the city. Emphasis is on the role of the engineer in the planning for urban transportation and the relationship of the engineer to the city planner and to the city administration. 3 hr. rec.

335. Surface and Subsurface Drainage. 3 hr. PR: Consent. The study of the nature and requirements of drainage studies and drainage design as they pertain to transportation facilities. Emphasis is on the theory of drainage design and a critical analysis of drainage practices. 3 hr. rec.

336. Highway Planning I. 3 hr. PR: Consent. Analysis of planning programs and methods including highway needs studies, priority rating systems, and programming methods. Consideration of traffic assignment and forecasting techniques. Devoted primarily to rural route problems. Case history method of study utilized. 3 hr. rec.

337. Highway Planning II. 3 hr. PR: Consent. Continuation of C.E. 336, with special attention to urban locations and planning. 3 hr. rec.

338. Highway Laws. 3 hr. PR: Consent. The analysis of existing highway laws with emphasis on those aspects particularly related to planning functions such as reservation of rights-of-way, access control, eminent domain, systems classification, and the basis for the existence and operation of various planning agencies. 3 hr. rec.

345. Properties of Air Pollutants. 3 hr. PR: Consent. Physical, chemical, biological, and social behavioral properties of dusts, droplets, and gases in the atmosphere. Air pollutant sampling and analysis. The planning and operation of air pollution surveys. 2 hr. rec., 3 hr. lab.

346. Air Pollution Control Engineering. 3 hr. PR: C.E. 345 or consent. Study of the engineering alternatives in achieving various degrees of air pollution control. Factors that are considered in selection and specification of dust and gas collectors and convertors for various types of operations, and the use of alternate process methods and process materials. 2 hr. rec., 3 hr. lab.

347. Air Pollution Control Standards. 3 hr. PR: C.E. 346 or consent. Comparative study of technical, economical and social factors used in developing and establishing air pollution standards, criteria, and control limitations. Relationships between process design specifications, pollutant emission limitations, ambient air pollution effects on people and objects, air quality standards and immission performance limitations. 2 hr. rec., 3 hr. lab.

348. Air Pollution Control Programs. 3 hr. PR: C.E. 346 or consent. Examination of air pollution control programs of industries and government.

Rationales and patterns of organization structure and operating administrative factors, including intra-office and inter-office and other group relationships. Significance of relationships with planning fire prevention, water pollution control, building inspection, and economic development agencies. 3 hr. rec.

349. Solid Waste Disposal. 3 hr. PR: Consent. Study of traditional patterns and problems of solid waste storage, transport, and disposal. Examination of various engineering alternatives with appropriate consideration for air pollution control, water-pollution control, and land reclamation. Analytical approaches to recovery and reuse of materials. 2 hr. rec., 3 hr. lab.

350. Sanitary Chemistry and Biology. 3 hr. PR: C.E. 145, Bact. 248, or consent. Study of the physical and chemical properties of water. Theory and methods of chemical analysis of water, sewage, and industrial wastes. Biological aspects of stream pollution problems. 2 hr. rec., 3 hr. lab.

352. Water Treatment Theory. 3 hr. PR: C.E. 350. Theory of the various procedures and techniques utilized in the treatment of water for municipal and industrial use. Review of water quality criteria. 2 hr. rec., 3 hr. lab.

353. Sewage and Industrial Waste Treatment. 3 hr. PR: C.E. 350. Theory and methods of sewage treatment. Chemical, biochemical, and physical factors related to waste treatment. Characteristics of industrial wastes and special considerations necessary for their disposal. 2 hr. rec., 3 hr. lab.

357. Hydraulics of Sanitary Engineering Works. 3 hr. PR: C.E. 221. The application of the techniques of population growth estimation, rainfall and runoff analysis, flood flow, and ground water data to the design of sanitary works. Design of water distribution systems and sewerage systems. 2 hr. rec., 3 hr. lab.

358. Design of Sanitary Works. 3 hr. PR: C.E. 221. The investigation of water supply and waste water disposal problems. The design of water purification and waste water treatment facilities. 2 hr. rec., 3 hr. lab.

359. Basic Radiological Health. 3 hr. PR: Consent. Fundamental theory and terminology. Environmental and occupational hazards in the nuclear field. Laboratory measurements of radioactivity. 2 hr. rec., 3 hr. lab.

360. Statically Indeterminate Structures. 3 hr. PR: C.E. 260 or consent. General theory of continuity, iterative and classical methods of analysis of skeleton structures with emphasis on the influence coefficient method. 3 hr. rec.

361. Bridge Engineering. 3 hr. PR: C.E. 360. Statically indeterminate trusses; continuous trusses; steel and concrete arches; long-span and suspension bridges; secondary stresses. 3 hr. rec.

362. Numerical Methods of Structural Analysis. 3 hr. PR: C.E. 261 or 360. Methods of successive approximations and numerical procedures for the solution of structural problems. Application of these procedures to the analysis of bridges and buildings. 3 hr. rec.

363. Introduction to Structural Dynamics. 3 hr. PR: Math. 240, C.E. 261 or 360. General theory for dynamic response of systems having one or several degrees of freedom. Emphasis on the application of dynamic response theory to structural design. 3 hr. rec.

375. Reinforced Concrete Design. 3 hr. PR: C.E. 270. Theories of action of beams, slabs, and columns of reinforced concrete; review of standard codes and specifications and their influence on design. 3 hr. rec.

376. Behavior of Reinforced Concrete Members. 3 hr. PR: C.E. 270 or consent. Studies of the actual behavior and strength of reinforced concrete

members by critically reviewing experimental and analytical investigations. Beams subjected to pure flexure, columns subjected to axial compression; combined flexure and compression; combined flexure, shear, and bond. 3 hr. rec.

377. Behavior of Reinforced Concrete Structures. 3 hr. PR: C.E. 376. Continuation of C.E. 376. Studies of behavior and strength of statically indeterminate reinforced concrete structures. Comparison with reinforced concrete codes and specifications. 3 hr. rec.

378. Thin Shell Roof Structures I. 3 hr. PR: Math. 253, C.E. 261 or consent. Emphasis on the development and solution of the fundamental elastic equations for barrel vault roofs using matrix algebra. Study of the effects of edge members upon the strength and stiffness of barrel vault roofs. Design of simple shell structures. 3 hr. rec.

379. Thin Shell Roof Structures II. 3 hr. PR: C.E. 378 or consent. A continuation of C.E. 378. Analysis of multiple cylindrical shells using the theory of elasticity and matrix algebra. Ultimate load and variational methods in shell analysis. Design and analysis of doubly curved shells. 3 hr. rec.

380. Soil Mechanics. 2-6 hr. PR: Consent. Advanced study of soil structure, shear strength, consolidation, and earth pressures. Sand drains, stress distribution, slope stability, seepage.

381. Soil Testing. 3 hr. PR: C.E. 280. The testing of soils for engineering purposes including classification, strength, consolidation, compaction, permeability, and special tests. Critical review of test methods and the analysis of test results. Organization and operation of a soils testing laboratory. 1 hr. rec., 6 hr. lab.

382. Foundations and Earthwork Design. 3 hr. PR: C.E. 380. Planning and performance of subsurface exploration. Principles of the design and analysis of retaining walls, pile foundations, bulkheads, and shallow and deep foundations. Considerations in the design of embankments and slopes. Problems of soft ground and rock construction. 3 hr. rec.

390. Advanced Design Problems. 2-6 hr. A design or investigation of any assigned problem related to civil engineering.

395. Seminar. 1-2 hr. PR: Consent. Studies and group discussions of structural, fluid mechanics, surveying, transporation, and sanitary problems.

397. Research. 2-6 hr. Original report or investigation on some topic in the civil engineering field.

ELECTRICAL ENGINEERING

Professors Jones, M. J. Smith, and Swartwout; Associate Professors Dubbe, Peterson, N. S. Smith, Jr., and Theophilus; Assistant Professor E. C. Barbe; Instructor D. F. Barbe.

Undergraduate Division

E.E.

*25. Electric Circuits. 4 hr. PR: Math. 117, Physics 102. Basic concepts, nonlinear elements, introduction to steady state electrical circuit theory (d-c and a-c), Ohm's law, Kirchhoff's laws, circuit analysis theorems, phasor algebra and its application to a-c circuit analysis. 3 hr. rec., 3 hr. lab.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

*105. Electrical Fundamentals. 4 hr. PR: Math. 253, Physics 102. Fundamental principles of electric and magnetic circuits. Induced and generated electromotive force. Fundamental a-c circuit analysis. Polyphase systems. Elementary electronics. (Primarily for non-electrical engineering students.) 3 hr. rec., 3 hr. lab.

*125. Electric Circuits. 4 hr. PR: E.E. 25, Math. 253. Complex frequency concept, Laplace transformation, transient analysis of both d-c and a-c circuit analysis. 3 hr. rec., 3 hr. lab.

*126. Electric and Magnetic Fields. 3 hr. PR: E.E. 25, Math. 253, Physics 102. Electric scalar potential; line integrals; the vector concepts of gradient, divergence and curl; flux lines and potential theory; the electric dipole; polarization; electric and magnetic fields of symmetrical geometrical systems; magnetic vector potential; ferromagnetism; elements of field mapping; summary in Maxwell's equations. 3 hr. rec.

*145. Electronic Fundamentals. 4 hr. PR: E.E. 105. A study of solid state devices, oscillators, and amplifiers. (Primarily for non-electrical engineering students.) 3 hr. rec., 3 hr. lab.

*152. Electronics. 4 hr. PR: E.E. 125, 126. The study and use of semi-conductor devices and vacuum tubes as circuit elements; rectifiers and voltage amplifiers. 3 hr. rec., 3 hr. lab.

180. Electrical Problems. 1-3 hr. For sophomore and junior students.

200. Seminar. (Credit). PR: Senior standing. Special material and projects.

*205. Electrical Fundamentals. 4 hr. PR: E.E. 105. Fundamentals and operating characteristics of electrical machines and transformers. Electron tube, phototube, and transistor characteristics. Electronic circuits. (Not open to electrical engineering students.) 3 hr. rec., 3 hr. lab.

*225. Electric Circuits. 4 hr. PR: E.E. 125. Distributed circuits (transmission lines), steady analysis of distributed circuits, simulation of distributed circuits by equivalent lumped parameter circuits. Interpretation of transmission line as general four terminal network (A B C D constants), matrix methods of combination of four terminal networks, introduction of "modern" network analysis. 3 hr. rec., 3 hr. lab.

226. Electromagnetic Fields. 3 hr. PR: E.E. 126. Plane waves in dielectric media; plane waves in conducting media; transmission lines; wave guides; antennas. 3 hr. rec.

232. Electromechanical Devices. 4 hr. PR: E.E. 125, 126. Fundamentals of electromechanical energy conversion. Transformers and rotating machines. 3 hr. rec., 3 hr. lab.

233. Electromechanical Devices. 4 hr. PR: E.E. 232. Analysis of machine-performance by the principles of electromechanical energy conversion. 3 hr. rec., 3 hr. lab.

235. Electrical Machinery. 3 hr. PR: E.E. 233 or consent. Synchronous machines, windings, calculation of emf and mmf; mmf space functions. Potier diagram, ASA regulation, 2-reactance diagrams. Multiple-winding transformers and auto transformers. 2 hr. rec., 3 hr. lab.

236. Electrical Machinery. 3 hr. PR: E.E. 233 or consent. Commutation theory of machines, d-c and a-c multiple-winding and special purpose machines; multiple machine systems. 2 hr. rec., 3 hr. lab.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

*252. Electronics. 3 hr. PR: E.E. 152. Analysis of power amplifiers, tuned amplifiers, oscillators, modulators, demodulators, and wave-shaping circuits. 3 hr. rec.

253. Physical Electronics. 3 hr. PR: E.E. 252. A study of the physical principles of electrical conduction and the application of these principles to electronic conduction in solids, electron emission, and conduction in vacuum and gas. 3 hr. rec.

*257. Transistor Circuits. 3 hr. PR: E.E. 252 or consent. A study of the general operating properties of the transistor as a circuit element. 3 hr. rec.

261. Networks and Filters. 3 hr. PR: E.E. 225 or consent. Analysis and synthesis of network and filters. 3 hr. rec.

262. Electronic and Communications Laboratory. 2 hr. PR: E.E. 252 or consent. A study of tuned amplifiers, oscillators, modulators, wave-shaping circuits, transmission line characteristics, and special topics. 6 hr. lab.

*264. Communications Engineering. 3 hr. PR: E.E. 252 or consent. Study and analysis of radio transmission, receiving and sound systems, frequency modulation, television radiation and propagation. 3 hr. rec.

270. Engineering Analysis and Design. 3 hr. PR: E.E. 232, 252. Formulation and application of the method of engineering analysis based upon fundamental physical laws, mathematics, and practical engineering considerations. Emphasis is placed on the professional approach to the analysis of engineering problems. 3 hr. rec.

*271. Theory of Digital Computers. 3 hr. PR: Senior standing in Engineering or Mathematics. An introduction to the field of digital computer design. Topics include general computer organization, number systems and number representations, design characteristics of major computer units, Boolean algebra and its application to computer design and sequencing of basic arithmetic processes in a computer. 3 hr. rec.

272. Introduction to Logic Design. 3 hr. PR: Junior standing or consent. An introduction to digital computing machines. The algebra, geometry and topology of binary logic. Functions of switching devices. Reduction of switching functions. Synthesis methods. Elements of switching circuit theory. Binary accumulators and/or other advanced topics. 3 hr. rec.

275. Pulse Techniques. 3 hr. PR: E.E. 225, 252. An introduction to the response of electrical networks to non-sinusoidal inputs, the analysis of active networks with large signals and the circuits and techniques used in pulse and digital equipment. 3 hr. rec.

280. Electrical Problems. 1-3 hr. For junior, senior, and graduate students.

281. Electrical Power Systems. 3 hr. PR: E.E. 226 or consent. Polyphase transformation with three-phase and with single-phase transformers. Principles of circuit protection and relaying. Principles of grounding. Introduction to symmetrical components. 3 hr. rec.

282. Symmetrical Components. 3 hr. PR: E.E. 226 or consent. An application to the methods of symmetrical phase components in calculating currents in systems under various types of unbalanced conditions. 3 hr. rec.

285. Electric-Power Transmission and Distribution. 3 hr. PR: E.E. 226. A study of circle diagrams applied to the various problems of power transmission; phase modifier applications and an introduction to power system stability. 3 hr. rec.

286. Fundamentals of Servomechanisms. 3 hr. PR: E.E. 225. Fundamental analysis of the servomechanisms and automatic control devices. 3 hr. rec.

287. Industrial Electronics and Controls. 3 hr. PR: Consent. A study of electronic and magnetic control equipment and its application in industry. 3 hr. rec.

288. Antennas. 3 hr. PR: E.E. 264 or consent. Analysis and design of antenna systems. 3 hr. rec.

*293. Analogue Computers. 3 hr. PR: Math. 253. A study of the theory and operation of analogue computers. Amplitude scaling and time scaling on the analogue computer and application of the analogue computer to the solution of differential equations. 3 hr. rec.

299. Ultra-High Frequency Technology. 3 hr. PR: E.E. 264 or consent. Study of special problems encountered at high and ultra-high frequencies. 3 hr. rec.

Graduate Division

300. Seminar. 1-3 hr. PR: Consent. Discussion of research in electrical engineering and special problems.

301. Electrical Power Systems. 3 hr. PR: E.E. 281 or consent. Load flow problems. Transient and steady state stability of systems. The principles of the application of network analyzers and other computing devices to the solution of power system problems. 3 hr. rec.

310. Switching Circuit Theory I. 3 hr. PR: E.E. 271 or consent. This course together with E.E. 311 provides the basis for mathematical switching theory. Boolean algebra and related systems are developed from the postulational approach and applications to the theory of computers and automata are studied in detail. The emphasis is upon setting up of mathematical models and a careful study of their properties rather than upon logical design and/or techniques of computation. 3 hr. rec.

311. Switching Circuit Theory II. 3 hr. PR: E.E. 310. This course is a continuation of E.E. 310. 3 hr. rec.

325. Advanced Linear Circuit Analysis. 3 hr. PR: Consent. Systematic formulation of circuit equations using topographical methods. Application of matrix algebra and complex variable theory to circuit analysis. 3 hr. rec.

326. Advanced Electric and Magnetic Field Theory. 3 hr. PR: Consent. Maxwell's equations, electromagnetic waves, poynting vectors, guided waves. 3 hr. rec.

327. Theory of Guided Waves. 3 hr. PR: E.E. 326. Transverse electromagnetic waves; propagation in cylindrical waveguides; in homogenously filled waveguides; waveguide discontinuities. 3 hr. rec.

330. Electrical Machinery. 3 hr. PR: E.E. 235 or consent. Advanced theory of synchronous and induction machinery following Parks-Doherty-Nickel theory; applications of matrix algebra and tensor analysis. 3 hr. rec.

348. Nonlinear Problems in Electrical Engineering. 3 hr. PR: Consent. A study of the solution of nonlinear differential equations encountered in electrical engineering and automatic control. 3 hr. rec.

350. Electronic Circuits. 3 hr. PR: E.E. 252. An advanced study for the analysis and design of electronic circuits. 3 hr. rec.

351. Physical Electronics. 3 hr. PR: E.E. 252. Application of principles of physics to predict the external characteristics of electronic devices. 3 hr. rec.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

361. Modern Network Synthesis. 3 hr. PR: E.E. 325. A study of the basic methods of modern network synthesis with applications to communications and automatic control systems. 3 hr. rec.

364. Communications Theory. 3 hr. PR: E.E. 264, E.E. 325. Mathematical representation of signals; information measurement and channel capacity; network analysis with random signals and noise. 3 hr. rec.

366. Information Theory I. 3 hr. PR: E.E. 364. Probability concepts; theory of discrete systems; encoding; theory of continuous systems; systems with memory; the fundamental theorem of information theory. 3 hr. rec.

367. Information Theory II. 3 hr. Continuation of E.E. 366. 3 hr. rec.

380. Electrical Problems. 1-6 hr. For graduate students.

386. Feedback System Theory. 3 hr. PR: E.E. 286, E.E. 325. Signal flow graphs; sensitivity; return difference; mathematical definition of feedback; effects of feedback; multiple loop systems; state variable techniques; multivariable systems. 3 hr. rec.

387. Sampled-Data Control Systems. 3 hr. PR: E.E. 386 or consent. A study of control systems in which the activating signal is represented by samples at regular time intervals. 3 hr. rec.

388. Synthesis of Feedback Systems I. 3 hr. PR: E.E. 364, E.E. 386. Methods of direct synthesis and optimization of feedback systems; Wiener theory; Pontryagin's maximum principle; dynamic programming; adaptive feedback systems. 3 hr. rec.

389. Synthesis of Feedback Systems II. 3 hr. Continuation of E.E. 388. 3 hr. rec.

397. Research. 1-6 hr. Advanced research or special investigations on some topic related to electrical engineering.

GENERAL

Professor C. H. Cather; Instructor Long.

G.

1. Engineering Lectures. (Credit). Required of all freshmen in engineering. A series of lectures designed to acquaint the engineering student at the beginning of his course with the profession he has chosen. 1 hr. lec.

100. Inspection Trip. (Credit).

INDUSTRIAL ENGINEERING

Professors R. E. Shafer and Fowler; Assistant Professor Cook; Instructors Black, Delaney, Martin, Nelson, and Schmidt.

Undergraduate Division

I.E.

*7. Welding and Heat Treatment. 1 hr. Practice in cutting and welding steel and cast iron with oxyacetylene and arc welding equipment. Demonstrations of different methods of heat treatment. One 3 hr. lab.

*11. Machine Work. 2 hr. A study of equipment, purpose and character of operations, methods of holding work, turning, boring, drilling, grinding, and shaping. Use of precision measuring instruments. Two 3 hr. labs.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

*15. Welding, Forming, and Heat Treatment. 2 hr. Molding and casting of nonferrous metals, oxycetylene welding, electric welding, resistance welding of plates, pipes, tubing, etc. Lectures, recitations, demonstrations, and laboratory practice. 6 hr. lab.

*100. Manufacturing Processes. 3 hr. Lectures, demonstrations, and laboratory work relating to methods, types of equipment and character of operations of welding machines and machine tools. Emphasis is placed on the economic use of machine tools, assembly line manufacture, gauging, and inspection. 2 hr. rec., 3 hr. lab.

110. Tool Design. 3 hr. PR: I.E. 100. Design, construction, application, and economic aspects of jigs, fixtures, and special tools used in manufacturing on a production basis. 2 hr. rec., 3 hr. lab.

131. Fundamentals of Industrial Engineering. 2 hr. PR: Sophomore standing. Principles of organization, including study and design of organization charts. Integration of motion and time study, production control, accounting, job evaluation, engineering economy, and other functions of industrial engineering into a composite industrial picture. Review of existing labor laws and current legislation. 2 hr. rec.

*140. Motion and Time Study. 3 hr. PR: Junior standing. Principles and techniques, job analysis, standardization, and formula construction; stop watch and micromotion analysis of industrial operations; development of production and incentive standards. 2 hr. rec., 3 hr. lab.

142. Production Control. 3 hr. PR: I.E. 140. Planning, scheduling, routing and dispatching in manufacturing operations and production control systems. Problems in industrial plant design. Layout for operation and control. Space utilization. 3 hr. rec.

*151. Accounting for Engineers. 3 hr. PR: Junior standing. A study of the accounting cycle, journals, and ledgers; study of fixed assets and depreciation; interpretation of financial statements. A survey of the essentials of cost accounting. Emphasis is placed on the utilization of cost data and reports by management, indicating management's control over industrial operations. 3 hr. rec.

*180. Introduction to Digital Computation. 3 hr. PR: Math. 2 or 3. Introduction to stored-program concepts, flow diagrams, looping, decisions, input-output techniques, interpretive systems, algebraic compilers, symbolic assembly systems, machine languages, subroutines, equipment components, and their applications. The student will have considerable opportunity to actually process numerical problems. The field of present and future equipment components will be surveyed, and the advantages and disadvantages of various techniques and systems will be indicated. 2 hr. rec., 3 hr. lab.

*200. Metal-Cutting Theory and Practice. 3 hr. PR: I.E. 100, Mat.E. 250. Metal-cutting tools, tool materials, work materials, cutting fluids, process of chip formation, cutting forces, tool-life tests, economics of tool life, measurement of product. 2 hr. rec., 3 hr. lab.

201. Metal Forming Manufacturing Processes. 3 hr. PR: I.E. 100 or consent. Applications and operations of the basic metal forming processes including the primary metal working processes and the metal shearing, drawing, binding, and squeezing processes, along with the machine tools required for these processes. 3 hr. rec.

205. Metal Forming Theory. 3 hr. PR: I.E. 201. A study of the mechanics and basics of metal forming with elementary theoretical and descriptive investigations of tube-sinking, deep-drawing, wire-drawing, extrusion, cold rolling, and forging. 3 hr. rec.

207. Metal Casting Manufacturing Processes. 3 hr. PR: I.E. 100 and Mat.E. 250 or consent. Fluidity processes used in industry covering non-permanent processes such as sand molding, centrifugal molding, investment molding, and shell molding. Some permanent mold methods will be investigated along with metal melting processes, molding machines, and fundamentals of costing design. 3 hr. rec.

211. Industrial Engineering Problems. 1-3 hr. PR: I.E. 140, and senior standing. Special problems relating to industrial engineering.

*214. Advanced Analysis of Engineering Data. S. 3 hr. PR: I.E. 244. The application of advanced theories of statistical techniques to analyze and interpret industrial problems. Subjects include multiple regression, curvilinear regression, advanced analysis of variance, randomized complete blocks, Latin Square designs, factorial designs, transformations, and analysis of response curves. Accent is on proper design of experiments, proper interpretation of results, and thorough consideration of all errors of estimation and errors of inference. 3 hr. rec.

*215. Statistical Decision Making. 3 hr. PR: I.E. 244 or consent. Probability relating to decision processes and essential logic in the applications of statistics and how management can recognize situations in which it will be profitable to employ them. 3 hr. rec.

*240. Motion and Time Study. 3 hr. PR: Junior standing. Not for industrial engineering students. Principal aims and applications of time and motion study. Job analysis, standardizations, use of stop watch micromotion analysis, operation and methods analysis. 2 hr. rec., 3 hr. lab.

*244. Engineering Statistics. 3 hr. PR or conc: Math. 108. The use of graphical analysis; measures of central tendency and dispersion; normal, binomial, and Poisson distributions in engineering applications; linear regression and correlation; tests of significance, nonparametric statistics, and analysis of variance. 3 hr. rec.

*250. Electronic Computer Data Processing. 3 hr. PR: Senior standing. Fundamentals of digital computer operations, equipment characteristics, input and output components. Elements of number systems. Fundamentals of "IR," information retrieval. Emphasis is placed on integrated systems analysis and design, business and industrial data for computer applications, and fundamentals of programming. Existing equipment systems and the economics of their applications will be reviewed.

253. Analytical Techniques of Operations Research. 3 hr. PR: I.E. 244, Math. 108. A study of the analytical techniques used in operations research and industrial engineering with special emphasis on their application to industrial systems and operations. The applications of matrix algebra, vectors and convex set theory to linear programming. Minimization techniques including differencing, differentiation of single and multiple integrals and Lagrangian multipliers with application to production and inventory problems. Markov Processes with applications to production problems and decision making. 3 hr. rec.

*254. Introduction to Operations Research. 3 hr. PR: I.E. 244, and conc: I.E. 142 or consent. Economic problems of production management, schematic models, linear programming, total value analysis, incremental analysis, Monte Carlo analysis, and equipment investment analysis. 3 hr. rec.

*287. Engineering Economy. 3 hr. PR: Junior standing. Comparison of the relative economy of engineering alternatives; compound interest in relation to calculation of annual costs; present worth and prospective rates of return on

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

investments; methods of depreciation; sunk costs, increment costs; general economy studies with emphasis on retirement and replacement of equipment; consideration of taxes, public works, and manufacturing costs as related to economic solution of engineering proposals. 3 hr. rec.

*288. Job Evaluation and Wage Incentives. 2 hr. PR: I.E. 140 or consent. Principles used in evaluating jobs, rates of pay, characteristics and objectives of wage incentive plans; incentive formulae and curves. 2 hr. rec.

*290. Industrial Statistics. 2 hr. PR: I.E. 244. Economic objectives of quality control in manufacturing through sampling methods; the Shewhart control chart for variables, attributes, and defects per unit; statistical approach to acceptance procedures. 2 hr. rec.

292. Plant Layout and Design. 3 hr. PR: I.E. 110 and 142. Problems in industrial plant design. Equipment location, space utilization, layout for operation and control, flow sheets, materials handling. Allied topics in power utilization, light, heat, and ventilation. 1 hr. rec., 6 hr. lab.

*294. Standard Manufacturing Costs. 3 hr. PR: I.E. 151. Development of standards for labor, material, and overhead expenses; uses of standards for control; analyses of variances between standard and actual costs. 3 hr. rec.

299. Human Factors Engineering. 3 hr. PR: I.E. 140, Psych. 115 or consent. An examination of human factors engineering and man-machine systems to include a study of ambient environment, human capabilities and equipment design. Application of human factors engineering in workplace design, maintainability, and task design methodology. Study of system design for man-computer interface, life support requirements, simulators and man-machine systems. 2 hr. rec., 3 hr. lab.

Graduate Division

300. Advanced Metal-Cutting Theory and Practice. 3 hr. PR: I.E. 200. The development of metal-cutting as a science through research, cutting-fluid theory, machinability of materials, tool materials, hot machining, tool-life tests, economics of machining. 2 hr. rec., 3 hr. lab.

310. Advanced Manufacturing Processes. 3 hr. PR: I.E. 100. A study of the newer and more complex manufacturing methods used in industry today. Welding and forming of titanium, magnesium, beryllium, and similar metals; assembly processes; powder metallurgy; adhesives and bonds; roll milling; electrical and chemical operations such as electro-forming and hot-dipping operations; hot forging; high energy rate forming (HERF); automated manufacturing processes including transfer mechanisms, continuous, and point-to-point numerical control; plastic tooling and fabrication methods; marking processes; and other manufacturing processes will be examined. 2 hr. rec., 3 hr. lab.

311. Seminar. 1-3 hr. PR: Consent. Discussion of research in Industrial Engineering and special problems.

312. Automation in Industry. 3 hr. PR: I.E. 100 or consent. The evolution, production fundamentals, and control systems of the principle fully automatic machine tools, both fixed and flexible, will be covered along with the basic philosophy, fundamentals, and methods of automation as practiced in industry today. 2 hr. rec., 3 hr. lab.

315. Management Control. 3 hr. PR: I.E. 151 or consent. A study of effective techniques for higher management control; a study of integrated and related control data to aid in establishing a preconceived goal. 3 hr. rec.

*Courses marked with an asterisk may be taken as undergraduate work by students in other colleges and schools.

344. Advanced Design of Industrial Experiments. 3 hr. PR: I.E. 214. A study of several of the more complex statistical methods including sequential analysis, analysis of covariance, multiple range tests, transformation of data, large factorial experiments, confounding, fractional replication, split-plot designs, lattice designs with one and two restrictions on treatment allocation, with special emphasis on the power, relative efficiency, and interpretation of these designs.

350. Queueing Theory. 3 hr. PR: I.E. 244. Best operating conditions for systems involving waiting times. Elements of stochastic processes. Single-channel and multi-channel models. Computational methods, including Monte Carlo techniques. Applications to problems such as maintenance and inventory control. 3 hr. rec.

351. Theory of Linear Programming. 3 hr. PR: I.E. 244 and I.E. 253 or consent. Extreme point solutions and their generation. Development of the simplex procedure. Duality problems in linear programming. Revised simplex procedure. Degeneracy procedures. Transportation problems. Selected topics related to linear programming. 3 hr. rec.

352. Introduction to Inventory Theory. 3 hr. PR: I.E. 215, 253, and 254. A study of techniques used in the optimization of inventory systems. Elements of static, deterministic inventory models, and static, stochastic inventory models. Dynamic inventory models. Selected topics related to inventory analysis. 3 hr. rec.

354. Special Topics in Systems Analysis and Operations Research. 3-6 hr. PR: Consent. Special topics from recent developments in operations research and related fields. Special emphasis will be placed on interests of current graduate students.

361. Methods Analysis and Work Simplification. 3 hr. PR: I.E. 140, 287. An advanced study of the techniques of methods analysis, including modern means of methods research. Development of appropriate cost analyses to accompany improved operating plans. A study of the design, installation, and administration of work simplification programs, suggestion systems, and remuneration policies, and the means of intra-plant communications concerning such programs. 2 hr. rec., 3 hr. lab.

370. Theory of Industrial Engineering and Organization. 3 hr. PR: Graduate standing and consent. History and development of scientific management in industry with early works of Taylor, Galbreth, and Gantt, to the present time. 3 hr. rec.

371. Methods Analysis. 2 hr. PR: I.E. 140 or I.E. 240. An advanced study of the technique of methods analysis as an effective means of methods improvement and cost reduction. 2 hr. rec.

372. Advanced Time Study. 3 hr. PR: I.E. 140. Review of the various investigations which have been made, with special consideration given to the development of these studies into new fields. 3 hr. rec.

373. Budget Control. 3 hr. PR: I.E. 294. Principles involved in the preparation of budgets by functional divisions and the application of divisional budgets as control media. 3 hr. rec.

374. Advanced Engineering Economy. 3 hr. PR: I.E. 287. Special emphasis on depreciation, engineering and economic aspects of selection and replacement of equipment; relationship of technical economy to income taxation and load factor and capacity to economy. 3 hr. rec.

380. Integrated Data Processing. 3 hr. PR: I.E. 250 and consent. Advanced work in electronic data-processing systems and procedures design. Case studies of integrated data-processing systems. Course projects will include individual use of a computer in management data-processing analysis problems. 3 hr. rec.

381. Digital Computer Applications. 1 hr. PR: Graduate standing in Engineering, Physical Science or Mathematics. Introduction to methods of digital computation and study of the programming process with emphasis on coding with an automatic programming language for scientific problems (FORTRAN). The student will have considerable opportunity to analyze engineering and scientific problems using the facilities available at the University Data Processing Center. 2 hr. rec., 3 hr. lab. (5-week period).

390. Advanced Industrial Statistics. 3 hr. PR: I.E. 290. Advanced study of 10 per cent-, double-, and sequential-sampling procedures, problems of application of statistical quality control methods in industries. 3 hr. rec.

397. Research. 1-6 hr. Investigation or original research on some special topic relating to industrial engineering.

399. Human Factors System Design. 3 hr. PR: I.E. 299, or consent. Application of human factors engineering in workplace design, maintainability, and task design methodology. A study of system design for man-computer interface, life support requirements, simulators, and man-machine systems. Research work in lab deals with human factors system design. 2 hr. rec., 3 hr. lab.

MECHANICAL ENGINEERING

Professors H. M. Cather, Hamilton, and Slonneger; Associate Professor Gencsoy; Assistant Professor Parmer; Instructors Blumen, Long, McKee, Adams,† Charlton,† Chmieliewski,† Golan,† Gump,† Loyd,† Sherren,† and W. D. Teter.†

M.E.

Undergraduate Division

20. Engineering Drawing and Graphics I. 3 hr. PR: Plane geometry. Lettering, use of instruments, geometric construction, orthographic projection, section and conventions, auxiliary views, descriptive geometry, pictorial sketching, dimensioning. 1 hr. rec., 6 hr. lab.

26. Engineering Drawing and Graphics II. 2 hr. PR: M.E. 20 and Math. 4. Graphical calculus, empirical equations, nomography vectors, graphical accuracy, co-ordinate systems. 6 hr. lab.

109. Mechanism. 2 hr. PR: M.E. 26 and Math. 117. Analytical and graphical analysis of the displacement, velocity and acceleration properties of fundamental machine configurations. Study of the requirements for constrained motion as a basis for mechanical synthesis and motion programming. 6 hr. lab.

112. Kinematics and Dynamics of Machines. 3 hr. PR: M.E. 109 and T.A.M. 104. Analytical and graphical analysis of force and motion effects applying to mechanical systems. Problems of periodic motion on force and isolation. 2 hr. rec., 3 hr. lab.

120. Engineering Thermodynamics. 3 hr. PR: Physics 111 and Math. 117. First and second laws of thermodynamics; energy equations; properties of gases and vapors; gaseous mixtures and combustion. 3 hr. rec.

121. Thermodynamics of Engineering. 3 hr. PR: Physics 111, Math. 117. Principles of thermodynamics; properties of gases and vapors; vapor cycles; internal combustion engines cycles; refrigeration; and heat transfer. Not open to students majoring in mechanical engineering. 3 hr. rec.

122. Mechanical Laboratory. 1 hr. PR: M.E. 121. Experiments involving calibration of measuring instruments, calorific value of fuels, physical properties of lubricating oil, and elementary tests of engines and boilers. 3 hr. lab.

†Part-time.

125. Engineering Thermodynamics. 3 hr. PR: M.E. 120 or consent. Continuation of M.E. 120; gas cycles; vapor cycles; air-vapor mixtures; flow; thermodynamics relations and equilibrium. 3 hr. rec.

126. Advanced Engineering Graphics. 2 hr. PR: Math. 117. Nomography, graphical and numerical analysis curve fitting, vectors, problem solution by analog and digital computers, graphical integration differentation.

132. Measurements and Computers. 2 hr. PR or conc: M.E. 120. Measurements, data analysis, standards and accuracy, calibration, pressure, force and temperature, etc., as applied in the experimental technique. An introduction to analog and digital computations. 1 hr. rec., 3 hr. lab.

133. Engineering Laboratory. 2 hr. PR: M.E. 132. Continuation of M.E. 132. Experiments involving heat transmission, refrigeration, and internal combustion engines. 3 hr. lab.

201. Design of Machine Members. 3 hr. PR: T.A.M. 103 and M.E. 112 or consent. Analysis and design of machine members based on the theory of strength of materials and its modifications due to manufacturing processes and economic considerations. Emphasis is on rational methods and the development of judgment in the design. 1 hr. rec., 6 hr. lab.

202. Engineering Analysis and Design. 3 hr. PR: M.E. 201 and consent. Use of fundamental principles of mathematics, statics, physics, mechanics, thermodynamics, and heat transfer in the rigorous analysis of engineering problems. Determination of the critical specifications of the problem solution and the use of a creative approach to the satisfaction of these critical specifications in a workable system. 2 hr. rec., 3 hr. lab.

203. Machine Design. 3 hr. PR: M.E. 201. Design of complete machines to perform given functions. Creative design is encouraged to provide new ideas. Final designs are selected to perform the function, be economical and easy to fabricate, and have a generally pleasing appearance. 1 hr. rec., 6 hr. lab.

204. Mechanical Vibrations. 3 hr. PR: Math. 253 and M.E. 112 or consent. Fundamentals of vibration theory. Free and forced vibration of single and multiple degree of freedom systems. Solution by Fourier and Laplace transformation techniques. Transient analysis emphasized. Energy methods. 3 hr. rec.

205. Kinematics. 3 hr. PR: M.E. 112 and Math. 253, or consent. Geometry of constrained motion, kinematic synthesis and design, special linkages. Coupler curves, inflection circle, Euler-Savary equation, cubic of stationary curvature and finite displacement techniques. 3 hr. rec.

223. Power Plants. 3 hr. PR: M.E. 125. Principles of design and operation of modern steam power plants for central stations and for process industries. Each student submits an individual design problem. 3 hr. rec.

224. Steam Turbines. 3 hr. PR: M.E. 125. The theory of fluid dynamics and the thermodynamics of the modern turbines; materials, construction details and design of important elements; influences on economy of variations in cycles and operative ranges. 3 hr. rec.

228. Mechanical Engineering Laboratory. 1 hr. PR: M.E. 132. Application of measurements to the testing of machines, heat transmission, refrigeration, internal combustion engines, etc. 3 hr. lab.

229. Internal Combustion Engines. 3 hr. PR: M.E. 121 or M.E. 125. The thermodynamics of the internal combustion engines; Otto cycle; Diesel cycle; two- and four-cycle engines, fuels, carburetion and fuel injection; combustion; engine performance, supercharging. 3 hr. rec.

230. Heat Transfer I. 3 hr. PR: M.E. 120 or M.E. 121. Steady state and transient conduction, including extended surface and numerical methods, emphasizing both forward and backward time step methods. Thermal radiation including radiation functions and radiation network theory. Boundary layer equations and forced and free convection are also covered. 3 hr. rec.

231. Introduction to Gas Dynamics. 3 hr. PR: M.E. 125 or M.E. 121, Math. 240 and Math. 253. The basic fundamentals of gas dynamics, one-dimensional gas dynamics and wave motion, methods of measurement, effect of viscosity and conductivity, and concepts from gas kinetics. 3 hr. rec.

235. Heat Transfer II. 3 hr. PR: M.E. 230. A continuation of M.E. 230, covering nonlinear extended surface; gas radiation; freezing, heat exchanger theory; recovery factor and high speed flow; and mass transfer. Also, periodic flow and application of the digital computer to problems in heat transfer. 3 hr. rec.

250. Heating, Ventilating, and Air Conditioning. 3 hr. PR: M.E. 125 or consent. Methods and systems of heating, ventilating, and air conditioning of various types of buildings, types of controls and their application. 3 hr. rec.

260. Introductory Engineering Systems Analysis. 3 hr. PR: Senior standing. A study of analogous and mixed systems. Similitude of mechanical, electrical, and acoustic dynamic systems. Dimensional analysis and theory of model design. 3 hr. rec.

265. Engineering Acoustics. 3 hr. PR: Math. 253 and consent. Use of fundamental principles of mathematics and physics to develop the basic theories of sound. Application of these theories involving sound in closed areas, the various modes of sound transmission, noise control, and psychoacoustic criteria. 3 hr. rec.

271. Introduction to Feedback Control Theory. 3 hr. PR: Math. 253 and E.E. 105 or equivalent background. Introduction to automatic control systems and concepts of feedback. Transfer function analysis of the equations of motion. Transient and steady state response. Stability criteria using Nyquist, root locus and frequency response techniques. 3 hr. rec.

280. Mechanical Problems. 1-6 hr. For junior, senior, and graduate students.

Graduate Division

300. Seminar. 1-3 hr. PR: Consent. Discussion, library readings, and individual study reports in the mechanical engineering field.

303. Advanced Machine Design. 3 hr. PR: M.E. 203. Stresses in indeterminate machine parts, experimental stress analysis. Design for high temperatures, pressures and speeds. Bearings and lubrication. Rotating discs and elastic stability and high speeds. Residual stresses and creep. 3 hr. rec.

304. Advanced Vibrations. 3 hr. PR: M.E. 204 or consent. Dynamic and harmonic analysis of multiple degree of freedom and continuous linear systems. Lagranges equations and matrix techniques. Use of analog and numerical techniques. 3 hr. rec.

305. Random Vibrations. 3 hr. PR: M.E. 204 or consent. Characterization of random motion. Response of linear time-invariant systems. First and second failure problems. Fatigue under random excitation. 3 hr. rec.

320. Advanced Thermodynamics. 3 hr. PR: M.E. 125. Definitions and scope of thermodynamics, First and Second laws, Maxwell's relation, Clapeyron relations, equation of state, thermodynamics of reactive systems, availability.

321. Advanced Thermodynamics II. 3 hr. PR: M.E. 320 or consent. Methods of statistical mechanics; concept of temperature; perfect diatomic gases and crystalline solids, Jacobean equations of thermodynamics; grand potential function; inherently irreversible processes.

330. Advanced Heat Transfer. 3 hr. PR: M.E. 230 or consent. Analytical and application treatment of steady state and transient conduction, including internal generation, integral equation forms, numerical solutions and minimum weight fin theory. Boundary layer theory of forced convection, Nusselt film theory of condensation and boiling theory.

331. Advanced Heat Transfer. 3 hr. PR: M.E. 330 or consent. Continuation of M.E. 330. Thermal radiation theory and application in addition to measurement errors and techniques. Topics covered will be radiation network theory, radiation functions and theory of emissivity. Some time is allowed for modern developments in heat transfer including the solution of heat transfer problems on digital computers.

351. Advanced Internal Combustion Engines. 3 hr. PR: M.E. 229 or consent. Combustion in spark ignition engines; compression ignition engines; detonation; fuel-air ratios; heat losses; lubrication; efficiencies; two-stroke engines; four-stroke engines; performance, exhaust turbines; gas turbines. 3 hr. rec.

352. Turbomachinery. 3 hr. PR: M.E. 121 or M.E. 125. A study of flow problems encountered in the design of water, gas and steam turbines, centrifugal and axial flow pumps and compressors, design parameters. 3 hr. rec.

354. Advanced Refrigeration. 3 hr. PR: M E. 250. Thermodynamics of vapor cycles, refrigerants, fluid flow, heat transfer, psychrometrics, types of refrigeration and equipment required, application of refrigeration in industry, food preservation. 3 hr. rec.

360. Engineering Similitudes. 3 hr. PR: Consent. Development of the dimensional analysis concepts and techniques and their application in model design. Rational approach to the design of distorted models. Study of analogies from a standpoint of model-prototype relations. 3 hr. rec.

397. Research. 1-10 hr. Investigation or original research on some topic relating to mechanical engineering.

THEORETICAL AND APPLIED MECHANICS

Professors Byars, C. H. Cather, Weaver, and Worrell; Associate Professor Shreeves; Assistant Professor Plants; Instructors Snyder, Haynes,† Lucas,† Evces,† Balsara,† Richmond,† and Vance.†

Undergraduate Division

T.A.M.

101. Statics. 3 hr. PR: Math. 117, Physics 11 (or reg. in Math. 117). Fundamental definitions and the concept of static equilibrium; systems of forces and couples; application to solution of trusses and frames; centroids and moments of inertia. 3 hr. rec.

102. Mechanics of Materials I. 3 hr. PR: T.A.M. 101 and Math. 117. Stress, strain, stress-strain relationships; Mohr stress and strain-circles; load-stress and load-deformation relationships for axial, torsion, bending, and buckling loads; inelastic as well as elastic theory is considered; deflections; column theory. 3 hr. rec.

†Part-time.

103. Mechanics of Materials II. 3 hr. PR: T.A.M. 102 and Math. 117. Theories of failure and design procedures; survey of experimental stress analysis; fatigue, energy, creep, relaxation, and temperature considerations. Laboratory work in behavior of common engineering materials under load; evaluation and interpretation of mechanical properties. 2 hr. rec., 3 hr. lab.

104. Dynamics. 3 hr. PR: T.A.M. 101 and Math. 117. Kinematics of a particle; moment of inertia of masses; translation, rotation and plane motion of rigid bodies; principle of work and energy impulse and momentum; application to engineering problems. 3 hr rec.

200. Advanced Mechanics of Materials I. 3 hr. PR: T.A.M. 103 or consent. Energy methods; localized stresses; nonsymmetrical bending; curved flexural members; thick-walled cylinders and rotating disks; beams on elastic supports.

201. Theory and Application of Oscillatory Phenomena. 3 hr. PR: T.A.M. 104. Study of oscillations or vibrations in acoustical, electrical, hydraulic and mechanical systems. 3 hr. rec.

202. Advanced Materials Laboratory. 2-4 hr. PR: T.A.M. 103. Continuation of T.A.M. 103 with emphasis on a selected problem or problems.

203. Experimental Stress Analysis. 3 hr. PR: T.A.M. 103, 104. Introduction to some of the more common experimental methods of analyzing stress distributions. Photoelasticity, brittle lacquers, birefrigent coatings, strain gage techniques and instrumentation, as applied to problems involving static, dynamic and residual stress distributions. 2 hr. rec., 3 hr. lab.

250. Intermediate Dynamics. 3 hr. PR: Consent. Mechanics of a particle; curvilinear coordinates, geometry of space curves, moving reference frames, generalized coordinates. Dynamical principles; D'Alembert's principle, principle of virtual work, Lagrange's equations, variational formulation of Hamilton's principle. 3 hr. rec.

280. Special Problems in Mechanics. 1-3 hr. PR: T.A.M. 103 and consent. For junior, senior, and graduate students.

Graduate Division

302. Analytical Methods in Engineering. 3 hr. PR: Math. 253 or consent. A course designed to provide training in the applications of mathematical analysis to engineering problems. Course content to include: index notation; determinant, matrices, and quadratic forms; linear transformations, eigen-value problems; complex variables; analytic functions, Taylor and Laurent expansions, residue theory, applications of conformal mapping; ordinary linear differential equations in the complex plane, existence and uniqueness theories, series solution for regular and irregular singularities, Legendre and Bessel equation, integral solutions. 3 hr. rec.

303. Analytical Methods in Engineering. 3 hr. PR: Consent. Continuation of T.A.M. 302. Course content to include: partial differential equations, method of characteristics, initial and boundary conditions; Dirichlet, Neumann, vibrating string, and other related problems; calculus of variations, stationary values of functions and functionals, Euler equations and boundary conditions, Lagrange multipliers, second variation for maximum problems, applications such as Hamilton's principle, linear integral equations, equations of the first and second kind, solution by successive substitution and approximation, eigen-values and eigen-functions, Fredholm theory, applications. 3 hr. rec.

310. Advanced Mechanics of Materials II. 3 hr. PR: Consent. Membrane stresses in shells; bending of flat plates; two-dimensional elasticity; torsion of non-circular sections; contact stresses.

312. Inelastic Behavior of Engineering Materials. 3 hr. PR: T.A.M. 200. Rheological aspects of inelastic behavior; inelastic load-stress relationship for members subjected to axial, bending, torsion and buckling loads. Analytical stress-strain relationship and use of Ramberg-Osgood parameters. Combined loading, interaction curves and their use. Statically indeterminate members loaded inelastically; inelastic buckling theory.

314. Theory of Buckling. 3 hr. PR: Consent. Fundamental theorems for the investigation of stability of mechanical systems. Application to discrete systems and development of stability equations for elastic bodies. 3 hr. rec.

316. Energy Methods in Applied Mechanics. 3 hr. PR: Consent. Introduction to variational principles of mechanics and applications to engineering problems; principle of virtual displacements, principle of minimum potential energy, principle of complementary energy, Castigliano's theorem, Hamilton's principle. Applications of energy principles to stress analysis of frames, rings, curved beams, elastic plates. 3 hr. rec.

318. Continuum Mechanics. 3 hr. PR: Undergraduate mechanics and Math. 253. A course designed to emphasize the basic laws of physical behavior of continuous media. Course content to include: analysis of stress; equations of motion and boundary conditions; kinematic analysis; rates of strain, dilatation, and rotation; bulk time rates of change; constitutive equations with special attention to elastic bodies and ideal fluids; energy equations and the first law of thermodynamics. 3 hr. rec.

320. Theory of Elasticity I. 3 hr. PR: Math. 253 or consent. A basic solid mechanics course to include: Cartesean tensors; equations of classical elasticity, energy, minimum, and uniqueness theorems for the first and second boundary value problems; St. Venent principle; extension, torsion, and bending problems. 3 hr. rec.

321. Theory of Elasticity II. 3 hr. PR: T.A.M. 320. Continuation of T.A.M. 320 with course content to include: generalized tensors; equations of finite elasticity; equations of classical elasticity in generalized coordinates; complex variables and potentials; plane stress and strain; various special problems. 3 hr. rec.

324. Theory of Thin Shells. 3 hr. PR: Consent. Theoretical basis for analysis of shell-type structures. Material includes differential geometry of surfaces, current shell theories; and stability criteria. 3 hr. rec.

330. Instrumentation in Engineering. 3 hr. PR: T.A.M. 104 or equiv. Theory of measuring instruments, with emphasis on dynamic, as opposed to static or slowly changing, measurements of force, pressure, displacement, vibration, temperature, etc. Also, selection of instruments for specific purposes. 2 hr. rec., 3 hr. lab.

340. Photoelasticity. 3 hr. PR: T.A.M. 200, 203. Theory of optics, birefringence, stress-optic law, polariscope, compensation. Techniques of model making, photography, polariscope use. Data interpretation by various methods including principal stress separation by shear difference and graphical integration. 2 hr. rec., 3 hr. lab.

350. Advanced Dynamics I. 3 hr. PR: Consent. Continuation of T.A.M. 250. Mechanics of a system of particles; mechanics of rigid bodies; theory of moments of inertia, angular momentum and kinetic energy, Poinsot's interpretation of torque-free motion, Euler's angles, Euler's dynamical equations, pitch, roll, yaw, spinning top, gyroscopes, etc., simple nonlinear systems.

351. Advanced Dynamics II. 3 hr. PR: Consent. Dynamics of continuous solids. Wave motion; study of string motion in detail in order to introduce methods for attacking more general problems, vibration of beams, membranes and plates. Stress propagation in unlimited solids; dilitational, distortional, and surface waves.

380. Advanced Independent Study. 1-3 hr. PR: T.A.M. 200, 203, Math. 253 or Math. 254. Individual investigation, either analytical or experimental, in one or more phases of advanced mechanics.

397. Research. 1-6 hr. Advanced research or special investigations on some topic related to mechanics.

Courses in the School of Mines

Professor Holland; Associate Professors Laird and McClung; Assistant Professors Sandy and Wasson; Instructor Pasini.

ENGINEERING OF MINES

Undergraduate Division

E.M.

1. Freshman Orientation. I. (Credit). Required of all freshmen in mining and petroleum engineering. A series of lectures designed to acquaint the student at the beginning of his course with the characteristics and requirements of the engineering profession, with particular attention to the mineral engineering fields. 1 hr. lec. Staff

102. Mine Surveying. SI. 5 hr. PR: Math. 15. Principles of surface and subsurface surveying, celestial observations, and related calculations together with intensive field practice in underground and surface surveying. Rec. and field work arranged. Mr. Laird

106. Mineralogy. II. 2 hr. PR: Chem. 2. Mineral identification, blowpipe analysis of minerals; occurrence, geographic distribution and utilization of minerals; elements of crystallography. Two 3 hr. labs. Mr. Laird

108. Fundamentals of Mining. I. 4 hr. PR: Geol. 1, Math. 117, Physics 102, E.M. 102, or consent. Mineral prospecting, drilling, use of explosives, mining methods for bedded deposits and ore bodies, timbering and application of mining machinery. 4 hr. rec. Mr. McClung

112. Mine Plant Design. II. 3 hr. PR: E.M. 212, T.A.M. 102, C.E. 115 and Mat.E. 250 or concurrent enrollment. Applications of the principle of mechanics and mining technology to the analysis and design of mine building, head-frames, bins, skips and cages. 2 hr. rec., 3 hr. lab. Mr. Sandy or Mr. Holland

207. Introductory Seismology. I, II. 1 hr. PR: Physics 102. Earthquakes and the causes and area distribution; theory of elastic waves; the principles of seismograph construction, adjustment, and operation; interpretation and calculation of seismograms with exercises provided by records of the University seismograph station. 1 hr. rec. Mr. Laird

209. Mineral Preparation. I, II. 3 hr. PR: T.A.M. 104, or consent. Principles of preparation, beneficiation and concentration of metallic and non-metallic ores for further processing or utilization. 2 hr. rec., 3 hr. lab. Mr. Sandy

212. Advanced Mining. II. 3 hr. PR: E.M. 108, E.E. 105. Engineering principles, methods and equipment applied to mine transportation, hoisting, and drainage. 3 hr. rec. Mr. McClung

213. Mine Ventilation. I. 3 hr. PR: E.M. 108, T.A.M. 104 and C.E. 115. Principles, purposes, methods and equipment pertaining to the ventilation of mines. 2 hr. rec., 3 hr. lab. Mr. McClung

215. Industrial Safety Engineering. I, II. 2 hr. PR: Junior standing or consent. Analysis of problems of industrial safety and accident prevention, laws pertaining to industrial safety and health, compensation plans and laws, and industrial property protection. 2 hr. rec. Mr. Sandy

217. Coal Preparation. I, II. 3 hr. PR: E.M. 212, C.E. 115, E.M. 209, and E.M. 210. Formation of coal, rank classification of coal, coal petrography, principles of preparing and beneficiating coal for market with laboratory devoted to sampling, screen analysis, float and sink separation and use of various types of coal cleaning equipment. 2 hr. rec., 3 hr. lab. Mr. Sandy

218. Advanced Mineral Preparation. I, II. 3 hr. PR: E.M. 108, E.M. 209, and E.M. 210. The theory and practice of concentration ores and industrial minerals with special consideration to the more recent advances in the beneficiation of both ores and coal. 2 hr. rec., 3 hr. lab. Mr. Sandy

219. Advanced Mining Methods for Vein Deposits. I, II. 3 hr. PR: E.M. 108, T.A.M. 104. Methods and systems of mining other than flat seams. Emphasis placed on selection of methods in relation to cohesive strength of ore bodies and their enclosing wall rocks. Mining of anthracite seam included. 3 hr. rec. Mr. Sandy

220. Mine Design. I, II. 3 hr. PR: E.M. 212, E.M. 241, and registration in E.M. 112. A comprehensive design problem involving underground mining developments or design of surface plant or both, as elected by the student in consultation with the instructor. A complete report on the problem is required including drawings, specifications and cost analysis. 9 hr. lab. Mr. McClung or Mr. Sandy

221. Mine Design. I, II. 2 hr. PR: E.M. 217, 220. Continuation of E.M. 220 including design of preparation plant and loading facilities with full report covering plans, equipment, operation, and costs. Two 3 hr. labs. Mr. Sandy

222. Mine Equipment and Machinery. I, II. 3 hr. PR: E.E. 205, E.M. 212. Selection, installation, operation, and maintenance of mining equipment. 3 hr. rec. Mr. McClung

223. Mine Management. II. 3 hr. PR: Math. 253, E.M. 212 and senior standing. Economic, governmental, social, and labor aspects of mining as related to the management of a mining enterprise. 3 hr. rec. Mr. Sandy

224. Mining Engineering Problems. I, II. 1-6 hr. PR: Senior or graduate standing. Investigation and detailed report on a special problem in mining engineering related to coal mining or mineral mining. Supervision and guidance by a member of the graduate faculty. Staff

228. Mine Equipment and Machinery Controls. II. 3 hr. PR: E.M. 227 or consent. Principles, application and use of electric and hydraulic devices and circuits for protection and control of mine machinery and equipment. 3 hr. rec. Mr. McClung

229. Advanced Mining Equipment Applications. I. 3 hr. PR: E.M. 228. Structural, mechanical, hydraulic and electrical characteristics of the more common items of mining equipment. Controls, electrical and hydraulic circuits, and mechanical transmissions with associated problems. Laboratory design of a control system for a mining machine. 2 hr. rec., 3 hr. lab. Mr. McClung

230. Elements of Geophysical Prospecting. I. 3 hr. PR: Geol. 3, Physics 102. Principles, calculations and application of methods for locating subsurface oil, gas, and mineral deposits. Mr. Laird

234. Applied Geophysics. II. 3 hr. PR: Physics 102 and Geol. 151 or consent. Origin of the universe and the planets, heat and age of the earth. Application of the science of geophysics in the location and analysis of earthquakes and in prospecting for oil and minerals. Mr. Laird

241. Mechanics of Ground Control in Mines. I. 3 hr. PR: T.A.M. 102, Math. 253, E.M. 108 or consent. Structure of the earth's crust, bedding planes, joints, heterogeneity, mechanical properties of rocks, stress-time-deformation relationships in rocks, theoretical stress distribution about mine openings, practical effects, factors in mine pillar design, pillar bursts, creeps and squeezes, mining subsidence. 2 hr. rec., 3 hr. lab. Mr. Holland

Graduate Division

301, 302. Advanced Mine Design. I, II. Credit arranged. Advanced detail design and layout of coal mine plant, particularly incorporating new ideas of machines and mining methods. Staff

351. Coal Mining. SI. 3 hr. PR: Chemistry, 10 hr.; physics, 8 hr..; and accompanied or preceded by general geology. Especially for students who are planning to teach mining subjects in high school. Not open to students taking E.M. 108 or 212. Hours arranged.

395, 396. Graduate Seminar in Coal Mine Operation and Administration. I, II. 3-6 hr. PR: B.S. Degree and consent of Committee. Group discussion and analysis of problems related to the production, preparation, marketing, and utilization of coal with special assignments and emphasis in accordance with personal background and field of interest of the individual student. Staff

397. Research. I, II. Credit arranged. Individual problem in some phase of mining. Carefully prepared report required. Staff

PETROLEUM ENGINEERING

Undergraduate Division

Pet.E.

106. Principles Applying to Oil and Gas Field Development and Production. II. 4 hr. PR: Math. 117 and Geol. 1. Introduction to principles and science of oil property development and oil and gas production science. 3 hr. rec., 3 hr. lab. Mr. Wasson

203. Petroleum Property Valuation and Management. II. 2 hr. PR: Pet.E. 106, Econ. 2, Math. 117 or consent. Petroleum property valuation and acquisition; economic, governmental, and social aspects of management of oil and gas properties. 2 hr. rec. Mr. Wasson

206. Natural Gas Engineering. II. 3 hr. PR: Pet.E. 106, C.E. 115. Principles of natural gas production, transmission, distribution, processing, regulation, measurement, storage and analysis with a laboratory devoted to the principles of the equipment utilized in the above named operations. 2 hr. rec., 3 hr. lab. Mr. Laird

216. Petroleum Engineering Design. II. 3 hr. PR: Pet.E. 232, Material Engr. 250. A comprehensive problem in design involving systems in oil and gas production, field processing, transportation and storage. Three 3-hr. labs. Mr. Laird and Mr. Wasson

224. Petroleum Engineering Problems. I, II. 1-6 hr. PR: Senior or graduate standing. Investigation and detailed report on a special problem in petroleum or natural gas engineering. Supervised by a member of the graduate faculty.

232. Petroleum Reservoir Engineering. I. 5 hr. PR: Pet.E. 236. Concepts on application of properties of rocks and rock-fluids systems which are fundamental to engineering analysis of petroleum reservoirs, mechanics of fluid flow in porous media, production by depletion drive, by frontal displacement, by water drive, by segregation drive and secondary recovery. 5 hr. rec. Mr. Wasson

235. Fundamentals of Well Logging. II. 3 hr. PR: Math. 253, Pet.E. 106, or consent. Principles of the various well logging methods and related calculations with exercises in interpretation of data from actual well logs. 2 hr. rec., 3 hr. lab. Mr. Laird

236. Mechanics of Hydrocarbon Fluids. I. 3 hr. PR: Physics 102, C.E. 115, Pet.E. 106, Chem. 163. The qualitative and quantitative phase behavior of single and multicomponent hydrocarbon systems with emphasis on application to petroleum production engineering and petroleum reservoir engineering. 2 hr. rec., 3 hr. lab. Mr. Wasson

237. Composition and Properties of Oil Well Drilling Fluids. I. 2 hr. PR: Pet.E. 106, Chem. 163 and C.E. 115. Principles of drilling fluid control including a laboratory for pilot testing, mud design procedures and measurement of composition and properties. 1 hr. rec., 3 hr. lab. Mr. Laird

238. Oil and Gas Law. II. 2 hr. PR: Pet.E. 106. Landowners interest, the oil and gas lease, transfer of interest, conservation laws, contracts, business organization, sales, professional registration, patents. 2 hr. rec. Mr. Wasson

240. Secondary Recovery of Oil by Water Flooding. I. 3 hr. PR: Pet.E. 232 or consent. Theory of immiscible fluid displacement mechanism, evaluation, and economics of water flood projects and oil field flooding techniques. 3 hr. rec. Mr. Wasson

Graduate Division

301. Advanced Petroleum and Natural Gas Engineering Design. I, II. Credit arranged. Advanced detail design problems in some phase of petroleum and natural gas exploration, production, and transportation, particularly incorporating new ideas, machines and methods.

397. Research. I, II. Credit arranged. An individual research problem in some phase of petroleum and natural gas exploration, production, and transportation. A carefully prepared report is required.

Research

THE ENGINEERING EXPERIMENT STATION

C. A. Arents, *Director*

J. A. Kent, *Associate Director*

The chief functions of the Engineering Experiment Station are to encourage and carry on research and investigations that will enhance the industrial and economic welfare of the people of West Virginia; to make original contributions to the fundamental principles and knowledge along scientific and engineering lines; and to stimulate and train graduate students in research activities.

The research undertaken by the Station therefore is primarily concerned with investigations in the production, processing, and utilization of the natural resources of West Virginia; investigations that will aid existing industries and promote the development of new industries in the State; and investigations that will aid in the planning, design, and development of the public works of the State. As a consequence of this program, the subjects receiving particular attention by the staff of the Station are coal, oil, gas, clays, stone, sand, timber, water, steam and electric power, sewerage, sanitation, road building, transportation, aeronautics, and communications.

The Station will assist in compiling surveys and in conducting investigations of the industrial requirements and possibilities of any region or community in the State. It cooperates with the West Virginia University Agricultural Experiment Station, State

Road Commission, State Geological and Economic Survey, State Water Commission, U. S. Bureau of Mines, national engineering societies, and state or national agencies whose assistance may promote the more effective fulfillment of the Station's functions.

To aid State industrial organizations that lack facilities and personnel to undertake important research investigations which arise in the development of their operations, the Station stands ready to assist in the prosecution of investigation on their fundamental problems. Such advisory services are free, but any special equipment, materials, or labor that may be needed must be supplied by the organization for which the work is being done. Several companies and technological associations are sponsoring research fellowships in the Station.

The staff of the Station includes part-time services of teaching members of the faculties of the College of Engineering and the School of Mines, as well as full-time research engineers and chemists and part-time graduate student research assistants and fellows.

The results of the studies, surveys, investigations, and researches of the Experiment Station are published in bulletin form. Two series of bulletins are issued, and to date there are 28 numbers in the Research Series and 63 in the Technical Series. The Technical Bulletins contain certain selected papers from the *Proceedings* of the Annual State Water Purification Conferences, the State Coal Conferences, the Appalachian Gas Measurement Short Courses, the Appalachian Underground Corrosion Short Courses, and the Industrial Engineering Conferences. In addition, several technical papers have been published; these are articles in the engineering, scientific, and technical journals. A list of publications and copies of the bulletins may be obtained upon application to the Director of the Engineering Experiment Station.

Through the College of Engineering and the School of Mines the Station has access to a wide range of talent and specialized knowledge and is able to supplement these with the resources of other colleges.

U. S. BUREAU OF MINES STATION

The United States Bureau of Mines maintains laboratory and pilot-plant facilities for research and development work on the production of synthesis gas from coal, which is part of the Bureau's over-all program for synthetic fuel development.

Under the terms of a cooperative agreement between the University and the Bureau, students are employed by the Bureau on a part-time basis.

COAL RESEARCH BUREAU

The Coal Research Bureau of the School of Mines was established by the University and written into law by the Legislature in 1962 following recommendations made by the Governor's Scientific Advisory Council on the Uses of Coal.

The purpose of the Bureau is to find new uses and markets for West Virginia coal by actively carrying on a coal research program looking toward that end.

The Bureau is empowered to accept gifts, grants and contracts for coal research and to contract for research services with outside agencies. The research in the Bureau is carried on by the director and staff of the Bureau subject to the rules and regulations of the Board of Governors and under the supervision and direction of the Dean of the School of Mines. The work done by the Bureau covers a broad scope of technical interests ranging from economic studies to highly technical studies involving coal carbonization and conversion of coal to liquid and gaseous fuels. The Bureau keeps abreast of the work done by other research organizations and works in close cooperation with the Federal Bureau of Mines, the State Department of Mines, the Planning and Research Division of the State Department of Commerce, the Office of Coal Research, as well as with other divisions and departments of the University.

An Advisory Committee on Coal Research, appointed by the Governor, advises and counsels the University on the program of the Bureau and makes recommendations to the Governor and Legislature concerning the support of its program.

The Graduate School

Complete information concerning graduate work may be found in the *Announcements* of the Graduate School, and in the *Announcements* of the various colleges and schools of the University. (Also see page 75 of this *Catalog*).

By order of the Board of Governors of West Virginia University, a University Graduate School is established, whose roots are implanted in all University undergraduate work, irrespective of colleges, schools, or departments. The Graduate School is empowered: (1) to direct research and investigation with particular reference to problems of the State, and (2) to train and recommend to the Board of Governors candidates for the degrees listed below.

The Kanawha Valley Graduate Center of West Virginia University, located at Institute, was established in 1958. Courses leading to the master's degree in chemistry, chemical engineering, mechanical engineering, and business administration are available at the Center.

All regulations governing the Graduate School such as the determination of curricula, projects, majors, minors, standards, thesis requirements, and similar matters shall be formulated by the Executive Committee and the Dean of the Graduate schools of the University.

THE ADVISER

The adviser will arrange a specific course of study to be approved by the Dean and, in the case of candidates for advanced degrees, will preside at the candidate's qualifying and final examination.

THE FACULTY

The Graduate Faculty is composed of those faculty members who are actively assisting with any phase of the graduate program such as teaching graduate courses, directing graduate research, supervising thesis and problem work, advising graduate students and directing their graduate studies. Membership is by appointment by the Dean of the Graduate School following certification by the Executive Committee. The Deans of the various colleges and schools, the Vice President-Medical Center, the Provost of the University, and the President of the University are members ex officio.

GRADUATE DEGREES

Graduate degrees offered by the departments in the University which have been approved for graduate work are as follows:

Master of Agriculture (M.Agr.)
Master of Arts (A.M.)
Master of Arts in Latin American Area Studies (M.A.Lat.Am.A.S.)
Master of Business Administration (M.B.A.)
Master of Home Economics (M.H.E.)
Master of Music (Mus.M.)
Master of Science (M.S.)
Master of Science in Aerospace Engineering (M.S.A.E.)
Master of Science in Agricultural Engineering (M.S.Agr.E.)
Master of Science in Chemical Engineering (M.S.Ch.E.)
Master of Science in Civil Engineering (M.S.C.E.)
Master of Science in Electrical Engineering (M.S.E.E.)
Master of Science in Engineering (M.S.E.)
Master of Science in Engineering of Mines (M.S.E.M.)
Master of Science in Extension Education (M.S.Ext.Ed.)
Master of Science in Forestry (M.S.F.)
Master of Science in Industrial Engineering (M.S.I.E.)

Master of Science in Mechanical Engineering (M.S.M.E.)
Master of Science in Nuclear Engineering (M.S.N.E.)
Master of Science in Petroleum Engineering (M.S.Pet.E.)
Master of Science in Theoretical and Applied Mechanics (M.S.T.A.M.)
Master of Science in Home Economics (M.S.H.E.)
Master of Science in Home Economics Education (M.S.H.E.Ed.)
Master of Science in Journalism (M.S.J.)
Master of Social Work (M.S.W.)
Doctor of Philosophy (Ph.D.)
Doctor of Education (Ed.D.)
Doctor of Musical Arts (D.M.A.)

GRADUATE CERTIFICATES

Graduate Certificates offered by certain departments or divisions of the University include: Certificate of Advanced Study in Education

PROFESSIONAL DEGREES

The following professional degrees are conferred upon graduates of the College of Engineering and the School of Mines of West Virginia University on the basis of practical experience and study in absentia, the presentation of a thesis, and an oral final examination:

Aerospace Engineer (A.E.)
Chemical Engineer (Ch.E.)
Civil Engineer (C.E.)
Electrical Engineer (E.E.)
Mechanical Engineer (M.E.)
Engineer of Mines (E.M.)
Petroleum Engineer (Pet.E.)

REQUIREMENTS FOR THE GRADUATE DEGREE

General Regulations

1. CANDIDACY

Admission to candidacy for any graduate degree is conditioned upon the fulfillment of the requirements for admission to the Graduate School, and also the particular requirements of undergraduate and graduate preparation for the field of study in which the student wishes to specialize. Unconditional admission to candidacy for an advanced degree involves a suitable period of graduate work in residence in which the student demonstrates his ability to do work of graduate caliber. Detailed information concerning candidacy for the Master's Degree and the Doctor's Degree may be found on the pages immediately following.

2. REQUIREMENT TO TAKE GRADUATE RECORD EXAMINATION

Students admitted to the Graduate School to begin a course of study for a degree or for teacher certification after September 1, 1962, will be required to submit scores in the general aptitude test of the Graduate Record Examination. The student's scores in the aptitude test will not affect his admission to or standing in the Graduate School. However, an individual department offering graduate work may consider both aptitude scores and the score in the appropriate advanced test of the Graduate Record Examination in deciding whether to admit a graduate student as a candidate for a degree in the department.

Students should arrange to take the general aptitude test and, if required by the major department, the appropriate advanced test of the Graduate Record Examination prior to their first registration at the University and should request the Educational Testing Service to forward their scores to the Dean of the Graduate School. Students who are unable to do this will be admitted to the Graduate School provisionally and will be required to take the Graduate Record Examination on the first date that it is offered on the West Virginia University campus, or elsewhere, after their admission, unless an extension of time is allowed by the graduate dean.

Information as to dates when the graduate Record Examination will be offered on the West Virginia University campus can be obtained from the Graduate School Office. The fee for the aptitude examination is $7.00; for an advanced test $8.00; for both examinations $12.00

Those planning to take the examination must apply to the Educational Testing Service, Princeton, New Jersey, at least fifteen days prior to the date of the examination.

3. SCHOLARSHIP

No credits are acceptable toward an advanced degree which are reported with a grade lower than "C."

Reasonable standards of oral and written English must be maintained.

4. CURRICULUM

Credit toward a graduate degree may be obtained only for courses listed in the *Announcements* of the Graduate School numbered 200-399.

No more than 15 hours of graduate courses in any one semester nor more than 6 hours of graduate courses in any term of the Summer Session may be carried by a student. Any exception to this rule must be approved in advance by the Dean of the Graduate School.

5. RESIDENCE AND EXTENSION

Residence credit for special field assignments and for work taken off the University campus shall be allowed only with prior approval of the Dean.

No more than 15 hours of extension work may be counted by any one student toward the Master's Degree.

For majors in Education no more than 15 hours by extension may be counted toward the Master's Degree and of these 15 no more than 8 hours may be obtained before the student completes at least 6 hours in residence on campus.

Full-time in-service teachers may obtain no more than 9 semester hours of credit toward the Master's Degree in any one academic year.

The maximum credit that students pursuing graduate work by extension may receive in any one field shall be 8 semester hours.

No more than 6 hours of graduate credit obtained in other approved institutions may be considered in meeting the requirements for the Master's Degree at West Virginia University.[1] Approval in writing must be secured in advance to elect graduate courses offered elsewhere. Credit will not be established here until the student has successfully completed at least 12 semester hours of graduate work at West Virginia University. Graduate credits so accepted toward the Master's Degree must meet the usual departmental requirements for a continuous and unified program of graduate study and will reduce correspondingly the number of hours of graduate work by extension offered in West Virginia University extension centers that may be offered in meeting the requirements for the Master's Degree.

No credits earned by extension prior to the admission of the student to graduate work and acceptance for graduate study may be counted toward meeting the requirements for the Master's Degree. However, seniors in the colleges of West Virginia University and in colleges where West Virginia University offers graduate courses by extension who are within 10 semester hours of graduation may, with the approval of the Dean of the Graduate School, enroll for graduate courses for which they may receive graduate credit after obtaining their bachelor's degrees. Such graduate courses must not have been offered for undergraduate credit, and in every case permission must have been requested before or at the time of enrolling for the course or courses. Normally, the maximum amount of credit avail-

[1]This regulation applies to all master's degrees based upon a total credit requirement of 30 to 46 semester hours. The degree of Master of Social Work is based upon a total credit requirement of 54 to 60 semester hours, 24 to 30 of which may be transferred under suitable conditions, but the last 30 of which must be earned and completed in West Virginia University.

able to a senior by petition in this manner before he completes all requirements for the bacculaureate degree and gains admission to the Graduate School will be 15 semester hours.

Each graduate student in residence, whether taking course work or engaged in conducting research or in writing a thesis or report, must register at the beginning of each semester or term during which graduate work is being done. He must be registered during the session in which he is to appear for final examination. Under exceptional conditions and with the prior approval of the Dean a graduate student may be permitted to meet a portion of the requirements for the degree in absentia, provided the customary residence and other requirements are met.

6. LIMITATION OF CREDIT LOADS FOR EMPLOYED GRADUATE STUDENTS

Graduate students will be required by their advisers to limit their credit loads in proportion to the outside service rendered and the time available for graduate study. In general, persons in full-time service to the University, or other employer, will be advised to enroll for no more than 6 hours of work in any regular semester or 3 hours in any 5-week summer term. Maximum credit loads for students who are employed are:

	Maximum Credit Load	
Basis of Employment	*Per Semester*	*Per Summer Term of Five or Six Weeks*
Full-time employees	6	3
Three-fourths-time employees	9	3
Half-time employees	12	4
One-fourth-time employees	15	5

Part-time students employed on a basis other than those listed will be advised to take credit loads in relative amounts.

7. THESES AND PROBLEM REPORTS

All theses and problem reports shall be presented in the form prescribed at least one month previous to the Commencement Day on which the degree is expected. If the thesis or problem report is accepted, typewritten and bound copies shall be submitted to the Office of the Graduate School at least one week before the degree is to be conferred; a minimum of five copies of the master's thesis and doctor's dissertation, or four copies of the problem report, is required.

8. FINAL EXAMINATIONS

The candidate shall not be eligible for the final examination until his thesis or problem report has been approved by the examining committee. Following approval of the candidate's thesis or problem report and satisfactory completion of the courses in residence and satisfaction of other graduate requirements, he shall be given a final examination by his advisory committee. Examining committees for theses and for final examinations for advanced degrees shall contain no fewer than three members for candidates for the Master's degree, and no fewer than five members for candidates for the Doctor's degree. In order to have his thesis accepted or to be considered as having satisfacorily passed his examination, the candidate shall have no more than one unfavorable vote in each case.

9. REQUEST FOR DEGREE

At the time of registration for the semester or session in which the candidate expects to receive a graduate degree, he shall submit a formal request to the Dean of the Graduate School for the conferring of such degree. The candidate must have completed all requirements for the degree which he wishes to receive, at least one week before Commencement Day.

10. COMMENCEMENT ATTENDANCE

Candidates for degrees to be conferred at the close of the second semester are expected to be present in person to receive their degrees.

THE DEGREES OF MASTER OF ARTS AND MASTER OF SCIENCE[2]

REQUIREMENTS FOR CANDIDACY

Satisfactory fulfillment of General Regulation No. 1 for graduate degrees will admit an applicant to candidacy.

REQUIREMENTS FOR COMPLETION

The completion within a period of seven years[3] immediately preceding the conferring of the degree, except with the permission of the Dean, of no less than 30 credit hours of graduate work approved by the adviser.

Residence: A minimum of two semesters is required, or one semester and three summer terms, or five summer terms of residence in full-time graduate study at West Virginia University. For students offering 15 credit hours in extension, a minimum period of residence at West Virginia University of one semester or three summer terms shall be required for the Master's Degree.

Program: In general, when a thesis is offered, the program will consist of 24 hours or more of suitable course work and 1 to 6 hours of thesis or research.

Thesis or Problem Report: A thesis or problem report granting no more than 6 hours of credit may be required by the faculty of the college, school, or department in which the candidate's major interest lies.

Final Examination: An examination, oral or written or both, at the option of the candidate's examining committee, shall be required, covering the candidate's thesis or problem report, studies in his major and minor fields, and his ability to apply facts and principles.

Special Requirements: The candidate must meet the special requirements of the department in which he pursues his major study.

THE DEGREES OF MASTER OF AGRICULTURE AND MASTER OF HOME ECONOMICS

Requirements: The requirements for and regulations governing the granting of these two degrees are the same as those for the degree of Master of Science with the following exceptions:

1. Candidates for the degree of Master of Agriculture and Master of Home Economics shall have previously completed the requirements for the degree of Bachelor of Science in Agriculture or Bachelor of Science in Home Economics, or their equivalents.

2. A research thesis shall not be required, but a problem report on some phase of agriculture or home economics shall be required. Not more than 3 semester hours of credit may be allowed for the problem report, which must be approved by the student's committee. The report must be submitted in the form prescribed by the regulations of the Graduate School.

[2]Major and minor work toward the master's degree is offered by most of the departments and divisions of the University. Offerings of these divisions and departments are given in this section of the **Catalog.**

[3]This ruling was discontinued temporarily during the war period. It was reinstated, effective June 1, 1948, as follows:

Beginning with the first summer term of 1948, the seven-year rule was again put into effect with the provision that, in the cases of students who have already started their graduate programs, the adviser and the Dean of the Graduate School will determine whether work taken before the seven-year period shall be accepted for credit. If the adviser and the Dean cannot agree, the case shall be brought before the Executive Committee for review. In the event that a graduate student began work during the war period, an extension up to a maximum of five years may be granted.

3. The program of work shall be such that the emphasis will be on breadth of knowledge in the field of agriculture or home economics, as the case may be, rather than upon study in one narrow field of science. To insure such breadth of training, the student must take work in at least five subject-matter fields. Not more than 10 credits will be accepted in any one field and not more than 10 credits from other colleges in the University will be accepted.

4. Special regulations may be made by the subject-matter division concerned, and approved by the Dean of the Graduate School.

The Degree of Master of Social Work

REQUIREMENTS

The degree of Master of Social Work is conferred by the University upon those students satisfactorily completing the requirements as established by the Graduate School. These requirements are:

1. Broad pre-professional training including not fewer than 24 hours of undergraduate work in the social sciences.

2. Completion of graduate courses approved by the Department of Social Work totaling not fewer than 54 semester hours, of which the last 30 hours shall have been completed in West Virginia University.

3. Completion of 20 semester hours of supervised field work under faculty direction.

4. Completion of a problem report.

5. Demonstration of competency in the theory and practice of social work to the satisfaction of the faculty of the Department. This will include passing with a satisfactory grade a comprehensive final examination, which may be oral or written, or both, at the discretion of the Department. The degree will not be awarded solely for credits earned.

For most students the requirements for the degree of Master of Social Work can be met in two full years of study.

Interdepartmental Programs

Industrial Relations. Degree: Master of Science.
Rehabilitation Counseling. Degree: Master of Science.

The Certificate of Advanced Study in Education

REQUIREMENTS

This is a distinct and terminal program including one full year of graduate study beyond the Master's Degree. The program is open to school administrators, supervisors, counselors, and teachers who furnish evidence of significant and appropriate teaching experience or closely allied educational work. The requirements for the certificate are: completion of 30 approved semester hours in residence earned after the conferring of the Master's Degree, including 6 to 12 semester hours of research. Persons expressing a desire to pursue the program leading to the certificate must satisfy a College of Education faculty committee on prerequisites.

The Degree of Doctor of Philosophy[4]

REQUIREMENTS FOR CANDIDACY

Admission to the Graduate School and enrollment in graduate courses does not of itself imply acceptance of the applicant for a Doctor's Degree. After a period

[4]Departments offering the Degree of Doctor of Philosophy are: Agricultural Biochemistry and Nutrition, Agronomy and Genetics, Biology, Chemical Engineering, Chemistry, Electrical Engineering, Geology, History, Philosophy and Psychology, Physics, Plant Pathology, Bacteriology, and Entomology, Political Science, Medical Biochemistry, Microbiology, Pharmacology, Physiology, Gross and Neurological Anatomy, the School of Music, and the College of Engineering.

of residence the applicant will be admitted to a comprehensive preliminary or qualifying examination (either oral, or written, or both) in which he must demonstrate: (a) a grasp of the important phases and problems of the field of study in which he proposes to major and an application of their relation to other fields of human knowledge and accomplishments; (b) the ability to employ rationally the instruments of research that have been developed in his major field; and (c) the ability to read French and German in a satisfactory manner.[5]

When an applicant has successfully passed his qualifying examination he will be formally promoted to candidacy for the Doctor's Degree. Admission to candidacy must precede the final examination for the Doctor's Degree by at least one academic year. Graduate courses pursued in fulfillment of the requirements for the Master's Degree, if of suitable character and quality, may be credited toward the doctorate.

REQUIREMENTS FOR COMPLETION

(a) *Curriculum*: The Degree of Doctor of Philosophy is not awarded for the mere accumulation of course credits nor for the completion of a definite residence requirement. The exact amount and nature of course work to be undertaken by a candidate will be determined in light of his previous preparation and the demands of his chosen field of application. The aggregate of correlated courses of graduate instruction should, however, be no less than 60 semester hours, exclusive of research or thesis, except research or thesis credits earned for the Master's Degree. These credits shall be ordered and distributed so as to promote broad and systematic knowledge and the ability to carry on independent research.

(b) *Residence*: In general, the requirements for the degree of Doctor of Philosophy contemplate at least three years of full-time graduate work beyond the Bachelor's Degree. A minimum of two semesters of residence in full-time graduate study, or its equivalent, at West Virginia University is required.

(c) *Thesis*: The candidate must submit a thesis pursued under the direction of the faculty of this University on some problem in the field of his major interest. The thesis must present the results of the candidate's individual investigation and must embody a definite contribution to knowledge.

(d) *Special Requirements*: The candidate must satisfy such special requirements, subject to approval of the Dean of the Graduate School, as may be required by the faculty of the college, school, or department in which his major lies. All required examinations in modern languages shall be taken not later than one academic year before the final examination for the degree.

(e) *Final Examination*: If the candidate's thesis is approved and he has fulfilled all other requirements stated above, he will be admitted to final oral examination on his thesis before his examining committee. At the option of this committee, a comprehensive written examination also may be required.

The Degree of Doctor of Education

This is a professional degree open to school leaders, administrators, teachers, and counselors who furnish evidence of significant and appropriate teaching experience. Persons expressing a desire to pursue the program leading to this degree must satisfy a College of Education faculty Committee on Prerequisites.

[5]In determining the candidate's proficiency in the two requisite foreign languages the major department must choose one of the following procedures:

(1) The examination may be conducted by the appropriate language department, or

(2) The examination may be conducted by a committee of three members—one member from the candidate's major field, one member from a related subject-matter field, and one member from the appropriate language department.

With the approval of the Dean of the Graduate School, one other language may be substituted for French or German.

At the specific written request of the college or department administering a Ph.D. program, and subject to the approval of the Executive Committee of the Graduate School, course work may be substituted for one language.

The Degree of Doctor of Musical Arts

This is a doctoral program for the music practitioner, for the artist-teacher. The core of the degree program centers around the complete mastery of the highest level of performing ability and extensive knowledge of literature within the field and culminates in the production of three or four highly artistic musical programs. The Doctor of Musical Arts field of specialization is limited to (1) piano and (2) voice.

The School of Journalism

GENERAL INFORMATION

The School of Journalism observed its Silver Anniversary in the Spring of 1964. It was on April 22, 1939, that the Board of Governors separated the former Department of Journalism from the College of Arts and Sciences and reorganized it as a School of Journalism, with an administrative status similar to that of other schools and colleges of the University. At the time, West Virginia's was one of six journalism schools in the United States to achieve such an independent status.

The School of Journalism has a staff of five full-time professors, four part-time lecturers, and four graduate assistants. A University newspaper, forerunner of the present *Daily Athenaeum*, began publication November 9, 1887. The first journalism instruction at West Virginia University consisted of a two-hour course in news writing offered in 1915 in the Department of English of the College of Arts and Sciences. The same department by 1920 offered more journalism courses, and in 1927 a separate Department of Journalism, built around a full professional curriculum, was established.

Accreditation

The School of Journalism has been accredited by the American Council on Education for Journalism for the Advertising-Management and News-Editorial sequences. A.C.E.J. approval is held by only forty-seven colleges and universities.

The quality of the School's program also has been recognized by memberships in the American Association of Schools and Departments of Journalism and the American Society of Journalism School Administrators.

Aims

The School of Journalism's objectives are:

1. To recruit men and women capable of serving the public interest through careers in journalism.
2. To help these young people achieve proficiency in the techniques employed in reporting, editing, and administering newspapers and other publications, and in the skills of advertising and radio-television journalism.
3. To make it possible for them to acquire, through a liberal arts background as well as their professional studies, that understanding of society's problems which is essential for effective leadership in any field.
4. To acquaint them with the responsibilities which must be assumed by communications specialists, and with the opportunities which are available.
5. To provide them with a knowledge of the role of journalism in society.
6. To carry on systematic research pertaining to problems in the field of communications.
7. To serve the citizens and communications media of West Virginia and the nation to the fullest extent that the abilities of students and staff members will permit.

Standards

From the beginning, instruction in journalism at West Virginia University has been in accord with the best professional school standards. Emphasis has been on quality, not numbers.

Staff members have been engaged with careful attention to their individual ability to give expert instruction in particular fields. Course offerings are changed from time to time to correspond to progressive changes in the profession. Class sizes have never reached proportions where individual instruction has had to be sacrificed. The School conforms to recognized national standards.

Location and Equipment

The School of Journalism, after being housed in Woodburn Hall for more than thirty-two years, moved into Martin Hall in 1953, where it occupies almost the entire building.

With its basement and three stories, Martin Hall has the equivalent of 32 standard-size classrooms, 29 of which provide the School with lecture rooms, an audio-visual classroom, an auditorium seating almost 200 persons, a front business office and advertising seminar room, an advertising layout laboratory, a typographical laboratory, a newsroom, reading room, photography laboratory and engraving rooms, a radio-television laboratory, an advertising laboratory, a public relations and industrial journalism laboratory, a room for the West Virginia Journalism Hall of Fame, and offices for the instructional and editorial staffs.

In many respects the rooms devoted to instruction in newspaper editing and publishing are equipped like the editorial and business quarters of a large weekly or small-city daily newspaper. The newsroom contains a U-copy desk, work tables and desks, telephones, and 25 typewriters. There are teletypewriters on which United Press International and Associated Press dispatches are received. These reports are edited by journalism majors under the supervision of faculty members.

The adjacent reading room contains newspapers, magazines, and some reference works. It receives daily representative newspapers and magazines of the nation as well as almost all West Virginia dailies and weeklies. It makes available for study about 40 dailies, many weeklies, a number of the standard magazines, and a collection of high school and college papers. The school subscribes to the important special periodicals of the profession.

For instruction in typography and advertising production, a laboratory has been equipped not only for providing demonstration material but also for giving the individual student practice in the setting and adaptation of type. The advertising-layout laboratory is supplied with special tables and desks for applied instruction. The facilities of the photography laboratory include those fundamental pieces of equipment essential to basic camera-print techniques. The school's radio-television laboratory is in 300 Martin Hall. Here, too, the school's telephone reporting laboratory is housed. In addition to such basic items as tables, typewriters, and telephones, the room has a 21-inch television receiver and a radio receiver which can receive both standard and short-wave broadcasts. Other equipment used in training students in broadcast journalism includes 16-mm. motion picture cameras, a 16-mm. motion picture projector, film editors with splicing units and viewers, and standard tape recorders. The School offers comprehensive programs of instruction in industrial publications and public relations. To introduce students to the limitations and possibilities of type, the School also has one Linotype and a medium-sized automatic Heidelberg platen press.

The journalism building also contains the office of the West Virginia Press Association, which makes available certain publications, periodicals, information, and other materials from its files and records.

Additional opportunities for observation and practice, especially in the business and mechanical aspects of newspaper work, are provided at the plant of the West Virginia Newspaper Publishing Company in Morgantown, where the *Daily Athenaeum*, the student newspaper, is printed under contract.

Practice Opportunities

Opportunities for applying the principles of sound newspaper and radio-television practice are good. The *Daily Athenaeum*, a four-day campus newspaper, is produced by journalism students in laboratories conducted from 3 to 5:30 P.M. and from 7 to 11 P.M. daily except Friday, Saturday, and Sunday. Reporters cover the University community thoroughly. Trained deskworkers not only edit the local reporters' copy but also prepare for publication the dispatches of state, national, and world origin received on the United Press International and Associated Press wires. Local pictures are taken by the newspaper's staff photographers, and other news pictures are selected from mats purchased from a national distributor.

All reporters serve as correspondents of weekly and daily newspapers. Majors pursuing the advertising-management sequence are required to spend no fewer than five hours a week during one semester soliciting advertising accounts for the campus daily, writing copy, and otherwise servicing their accounts, and making collections for the advertising sold.

Some students get additional practice by working part-time for Morgantown dailies or by taking vacation positions on newspapers of their home communities. Majors are especially urged to obtain vacation work on a good weekly or daily newspaper during the summers that precede their junior and senior years. As a rule, student journalists have staff positions on, or are regular contributors to, other campus publications.

Under a formal state-wide intern training program which became effective in 1959, students with at least a 2.0 average in all subjects and a 3.0 average in journalism courses, or who have special consent, are employed by West Virginia newspapers for a 10-12 week period during the summer at a salary of $50 per week. These internships are available to students in the summers preceding their junior and senior years.

Training for students preparing for jobs in radio and television is conducted along workshop lines. In the radio courses, these students produce newscasts at local broadcasting stations under supervised laboratory conditions. In the television courses they function as "film stringers" in covering University and Morgantown events.

In their radio labs, the students are responsible for gathering and writing the news for news programs and their work is evaluated during class meetings in Martin Hall. While the main purpose of this work is to develop writing ability, meaning the ability to present information in a conversational manner, students also have an opportunity to acquire some broadcasting experience.

Most of the students' television work involves production. When they have mastered the principles of motion picture photography, they apply TV techniques to these principles in "dry run" assignments. Later, they have an opportunity to shoot regional news events for television stations requesting film coverage. Film editing and splicing techniques are stressed during the lab periods.

Courses Open to Non-Journalism Majors

The School of Journalism desires to share its knowledge of the philosophy, history, principles, practices, and techniques of journalism and mass communications with all University students, regardless of major study, who desire to elect courses or to minor in the field. Many courses, as indicated in the list published in the School of Journalism *Announcements,* are open to non-journalism majors.

Proficiency in English

Regular students of the University or transfers from other colleges and universities are expected to speak and write the English language with a marked degree of correctness. This means that in their English composition courses they should have achieved a standing of approximately "B" or higher. If upon entering the School of Journalism a student is found deficient in English he will be required to take one or more additional courses in fundamental composition. (See page 92 for information concerning the English Proficiency Examination).

Typewriting

Before or soon after entering the University, a student planning to become a journalism major should learn the touch system of typing. From the beginning every reporter is expected to submit copy in neat typewritten form. If the reporter cannot demonstrate such typing ability, he may be asked to withdraw from the reporting course. He will find it advantageous to have his own machine.

REQUIREMENTS FOR THE DEGREE

THE BROAD EDUCATIONAL BACKGROUND

The School of Journalism emphasizes a strong liberal arts background for its students. Curricula are arranged so that students devote approximately 75 per cent of their study to broad liberal arts subjects and 25 per cent to professional courses in journalism.

This philosophy of journalism education is in accord with what appears to be the best current thought in both educational and professional circles, and it is the goal of the American Council on Education for Journalism.

It is enunciated by requiring a minimum of 30 hours, and a maximum of 33, in journalism within the first 128 hours offered for the B.S.J. degree, and by insistence on a "content" field of study as a minor. In addition to learning certain techniques and gaining journalistic knowledge and insights, students in their journalism courses are enabled to synthesize and bring into sharp focus the knowledge gained in all their university studies. The content of at least half their courses in journalism lies well within the area of general knowledge leading to sound citizenship and enriched living, regardless of their future career roles. They develop skills of communication; gain an understanding of the nature of major local, state, national, and world problems and of the role of mass media in the democratic process; learn to evaluate intelligently both news and opinion as expressed through print and broadcast journalism, and in fact, become alert, informed consumers, as well as producers, of news and views upon which decisions are generally made in a democracy.

Among the foundation courses that receive special attention are these: the English language and literature; foreign language; theoretical and applied economics and business administration; national, state, and local government and the governmental systems of foreign countries; American politics and international relations; the problems of management and labor and their social implications; American and European history; philosophy, psychology, and natural science. Persons capable of producing newspapers or broadcasting news events and their interpretation with which today's readers and listeners will be satisfied must be thoroughly informed about all aspects of the modern world. They must also know the art and science of the best journalistic practice.

BACHELOR OF SCIENCE IN JOURNALISM

A candidate who has satisfied all general requirements of the University and who as a regularly enrolled student of the School of Journalism has earned 64 semester hours of credit, of a value specified in the "Scholastic Requirements" section, and in the subjects listed in one of the professional curricula hereinafter outlined, will be recommended for the degree of Bachelor of Science in Journalism or Bachelor of Science in Journalism Education, provided the combined number of his credits acquired as a pre-journalism student and as a regularly enrolled journalism major totals no fewer than 128.

As a minimum professional requirement, 22-25 of the 64 semester credits earned after the student has enrolled in the School of Journalism must be obtained in journalism subjects. No fewer than 40 of the 64 semester credits shall be obtained in courses numbered between 100 and 300. Further, no student will be permitted to offer fewer than 30 nor more than 33 hours of journalism courses in the 128 semester credits required for the degree.

Students who have earned less than a 2.25 cumulative average may be admitted to the School of Journalism providing their applications are approved by the School of Journalism's Committee on Scholarship. However, any student earning less than 2.25 average in a given semester, after admission to the School of Journalism, is automatically placed on probation and limited to a course load of no more than 14 hours the following semester. Failure to meet the scholastic requirements set forth in this bulletin will lead to suspension from the School of Journalism.

Minimum and Maximum Work

A student, admitted to the School of Journalism, who wishes to carry less than 14 hours of course work in a given semester, must petition the School's scholarship committee for permission to do so. A journalism major may register for no fewer than 14 hours and, normally, no more than 18 hours per semester. To carry 19 hours, a student must have maintained a "B" average or higher during the preceding semester; however, even students with "B" or higher averages must petition the scholarship committee if they wish to carry *more* than 18 hours any semester. Students earning less than a "B" average the preceding semester must petition the committee for permission to carry more than 17 hours any semester.

Foreign Languages

To be eligible for the B.S.J. degree, a student must have completed 12 semester hours in one language in college; or he must have offered two units in a foreign language for entrance and must have completed 6 hours in the same language in college, above courses numbered "1" and "2."

An advertising major may substitute a *Marketing Minor* for the Foreign Language requirement stated above. However, any advertising major contemplating graduate work is strongly advised to select the foreign language option.

A journalism major with agriculture or science specialization may substitute 12 hours of advanced course work in his specialization.

Exemption from Requirements

Exemption from any professional course because of practical newspaper experience that a student may have had will be granted only after the student has submitted satisfactory evidence as to the nature and quality of the experience. For such exemptions approved advanced courses shall be submitted. Credit toward a degree can be granted for practical work only when it has been done under the supervision of an accredited instructor.

Scholastic Requirements

Graduates of the School of Journalism are expected to be not only citizens of good manners, of honorable and upright character and of respect for other people and their ideas, but alert individuals of better-than-average intellectual attainments. It is urged, therefore, that all candidates for a degree aspire to earn at least three times as many grade points as they have credit hours. To be eligible for graduation, a student must earn as a minimum a cumulative average of 2.25 grade points with at least an overall 2.5 average for journalism work, or a minimum of 288 grade points for 128 hours of academic work, if all credit is earned at West Virginia University.

In addition to the general experience each journalism major will obtain on the *Daily Athenaeum* in connection with required or elective courses, no major will be approved for graduation unless during either his junior or senior year he has served for not less than one semester in some editorial or executive capacity on the *Daily Athenaeum*, or unless he has offered in place of this service a substitute project approved by his adviser.

No student will be recommended for the degree unless he has shown to the satisfaction of the faculty that he possesses abilities and qualities which give promise that he can do adequate work in professional journalism.

Core Curriculum Requirements

All undergraduates entering the University for the first time in September, 1964, or later, must complete the University Core Curriculum requirements in order to graduate. (See page 93).

PRE-JOURNALISM CURRICULUM

The School of Journalism has designed the principal courses in which a pre-journalism freshman and sophomore should enroll in order to help him fulfill the desired program leading to the degree of Bachelor of Science in Journalism. These courses offer the student an introduction to several fields from which he later will select his minor.

FIRST YEAR	*Hr.*
English 1 and 2—Composition and Rhetoric	6
History 1 and 2 or Humanities 1 and 2	6-8
Natural or Physical Science	8
*Foreign Language	6
Journalism 1—Introduction to Mass Communications	2
Journalism 2—Lectures in Journalism	1
Physical Education	2
Military or Air Science 1 and 2	4
Electives as needed	

SECOND YEAR	*Hr.*
Journalism 18—News Writing	3
Journalism 19—Copy Editing and Makeup	3
History 52—Growth of American Nation to 1865	3
History 53—Making of Modern America 1865 to Present	3
*Foreign Language (if needed)	6
English 6—American Literature	3
English 4 or 164—English Literature	3
Economics 1 and 2—Principles of Economics	6
Military or Air Science 3 and 4	4
Physical Education (Women)	2
Electives as needed	

*Advertising majors may substitute a Marketing Minor for the Foreign Language requirement. Accounting 1 and 2 are required for Management majors, may be elected by Advertising majors.

THE MINOR FIELD

To meet the requirements for a minor, a student must earn at least 15 semester credits in some subject other than journalism, 12 of which must be in courses numbered 100-199 or 200-299. For students pursuing two minors simultaneously, the requirement in each area is at least 12 semester credits, of which 9 must be in upper-division courses (those numbered above "100"). The first minor must be in a "content" area of study. Minor fields especially recommended for all journalism students are economics, history, English, political science, and sociology. In addition, commerce is recommended for Advertising-Management, Public Relations, and Journalism with Specialization majors; and agriculture, the natural sciences, life sciences, and engineering are recommended for Journalism with Specialization majors.

Students in other areas of study who desire to minor or take extensive electives in journalism are welcome and will be given special counseling to obtain the information and skills which they desire. Such students should consult with both their own advisers and the Dean of the School of Journalism regarding the journalism courses in which they are to enroll.

Curricula

The School of Journalism offers five curricula designed to equip students for specialized branches of journalism practice or for occupations or professions for which journalistic training is desirable or necessary preparation. Each sequence leads to the degree of Bachelor of Science in Journalism.

ADVERTISING-MANAGEMENT CURRICULUM

This is a sequence designed to prepare students for careers in creative advertising, advertising sales, and newspaper management.

THIRD YEAR	*Hr.*
*Accounting 1 and 2—Principles of Accounting	6
**Psychology 1—Introduction to Psychology, or Philosophy 104—Introduction to Philosophy	3
Pol. Sci. 2—American Federal System	3
Marketing 111—Principles of Marketing	3
Marketing 115—Principles of Retailing	3
Journalism 110—Typography and Printing Processes	2
Journalism 113—Principles of Advertising	3
Journalism 115—Advertising Copy and Layout	2
Electives as needed	

FOURTH YEAR	*Hr.*
Journalism 101 or 201—Intrepreting Current Events	1
Journalism 108—The Community Newspaper	2
Journalism 109—Applied Newspaper Management	2
Journalism 114—Newspaper Advertisement Selling	2
Journalism 239—Seminar in Advertising Problems	2
Electives as needed	

*Advertising majors may substitute a Marketing Minor for the Foreign Language requirement. Accounting 1 and 2 are required for Management majors, may be elected by Advertising majors.

**Psychology 1 is required of Advertising majors. Management majors may elect either Psychology 1 or Philosophy 104.

Advertising-Management majors will elect from 5 to 8 additional hours in journalism from the following courses: Journ. 116, 118, 119, 120, 122, 124, 170, 212, 227, and 230.

NEWS-EDITORIAL CURRICULUM

This is a sequence intended primarily for those who wish to prepare themselves for writing or editing positions with newspapers.

THIRD YEAR	*Hr.*
Psychology 1—Introduction to Psychology, or Philosophy 104-Introduction to Philosophy	3
Pol. Sci. 2—American Federal System	3
Pol. Sci. 120—State and Local Government	3
Journalism 101 or 201—Interpreting Current Events	1
Journalism 118—Reporting	3
Journalism 119—Advanced Editing and Makeup	3
Journalism 120—News Photography	2
Electives as needed	

FOURTH YEAR	*Hr.*
Journalism 227—History of Journalism	3
Journalism 128—Reporting of Public Affairs	2
Journalism 230 and 235—Editorial and Law of the Press	4
Electives as needed	

News-Editorial majors will elect from 3 to 6 additional hours in journalism from the following courses: Journ. 108, 110, 113, 122, 123, 170, 212, and 220.

PUBLIC RELATIONS CURRICULUM

This sequence is designed for students who wish to prepare for work in a public relations firm or public relations department, or for the position of information specialist in business, industry, organized labor, government, education, welfare agencies, or the armed services.

THIRD YEAR	*Hr.*
Journalism 110—Typography and Printing Processes	2
Journalism 113—Principles of Advertising	3
Journalism 118—Reporting	3
Pol. Sci. 120—State and Local Government	3
Psychology 1—Introduction to Psychology	3
Psychology 216—Attitudes and Propaganda	3
Speech 11—Public Speaking	3
Electives as needed	

FOURTH YEAR	*Hr.*
Economics 115—Labor Problems	3
Journalism 120—News Photography	2
Journalism 101 or 201—Interpreting Current Events	1
Journalism 212—Public Relations	3
Journalism 213—Industrial Journalism	2
Journalism 230—Editorial and Law of the Press	2
Electives as needed	

Public Relations majors will elect from 3 to 6 additional hours in journalism from the following courses: Journ. 119, 122, 123, 124, 125, 220, and 235.

RADIO-TELEVISION CURRICULUM

This sequence is designed for students who want to work in the news and information areas in the broadcasting field. Course offerings are geared to the needs of those desiring to prepare for such positions as radio-TV news reporter, newscaster, and news executive; TV news cameraman; wire service radio editor; and station salesman, or commercial copy writer.

THIRD YEAR	*Hr.*
Journalism 118—Reporting	3
Journalism 120-News Photography	2
Journalism 122 and 123—Radio and Television Reporting	4
Psychology 1—Introduction to Psychology, or Philosophy 104—Introduction to Philosophy	3
Pol. Sci. 2—American Federal System	3
Electives as needed	

FOURTH YEAR	*Hr.*
Journalism 101 or 201—Interpreting Current Events	1
Journalism 116—Radio-Television Advertising	2
Journalism 124—Television News Photography	2
Journalism 125—Television Film Reporting and Editing	2
Pol. Sci. 120—State and Local Government	3
Electives as needed	

Radio-Television majors will elect 5 to 8 additional hours in journalism from the following courses: Journ. 113, 119, 128, 212, 213, 220, 227, 230, 235.

JOURNALISM WITH SPECIALIZATION, AGRICULTURE, SCIENCES*

This is a sequence designed to enable a student to obtain proficiency in agriculture, scientific writing, and journalism while acquiring extensive knowledge in specialized areas, such as agriculture, home economics, the medical sciences, the natural and physical sciences, mathematics, or commerce.

*Foreign language waived in lieu of twelve (12) hours of upper-division work in a specialization.

FIRST YEAR	Hr.	SECOND YEAR	Hr.
Journalism 1	2	Journalism 18, 19	6
†English 1, 2	6	Journalism 110	2
†Science	8	†Humanities 1, 2	8
†Mathematics 3, 4	6	†Economics 1, 2	6
†Pol. Sci. 2	3	Speech 11	3
Physical Education 2	2	Mil. or Air Sci.	4
Mil. or Air Sci.	4	Physical Education (Women)	2
	31		27-29
SPECIALIZATION			
Science or Mathematics	2-3	Science	6-8
	33-34		33-39
AGRICULTURE			
		Animal Industry and Veterinary Science 51	4
Agriculture 11, 12	2	Agriculture 52	4
	33		35-37

THIRD YEAR	Hr.	FOURTH YEAR	Hr.
Journalism 101 or 201	1	Journalism Electives	10
Journalism 113	3	Pol. Sci. 120 or Psych. 115	3
Journalism 118	3	Non-Specialization Electives	12-15
Journalism Electives	3		
†History 52, 53	6		
†English 4, 6	6		
Psychology 1	3		
	25		25-28
SPECIALIZATION			
Science	6	Science	9
	33		33-35
AGRICULTURE			
Agricultural Statistics 101	3		
Electives	6	Agriculture Electives	6
	34		31-34

Summary

Total Hours, required subjects in basic core	108-113
Total Hours Journalism Major	30
Specialization	24-26
	133-138

†See Core Curriculum Requirements.

Journalism majors specializing in agriculture or the sciences will elect from 13-16 additional hours in journalism from the following courses: Journalism 119, 120, 122, 123, 124, 125, 128, 212, 213, and 230.

Electives in specialization, both in agriculture and the sciences, will be determined in consultation with the journalism adviser.

Students are expected to consult the *Announcements* of the College of Agriculture, Forestry, and Home Economics and the science departments of the College of Arts and Sciences.

PROGRAM FOR PROSPECTIVE HIGH SCHOOL JOURNALISM TEACHERS

Students may obtain the Bachelor of Science in Journalism Education degree and also qualify for a first-class professional certificate in West Virginia with teaching fields in English and social studies, and a minor teaching field in journalism, Grades 7-12, by taking the following course of study:

FIRST YEAR

	Hr.
English 1 and 2	6
History 1 and 2 or Humanities 1 and 2	6-8
Social Science 1 and 2	8
General Biology 1 and 2, or Physical Science 1 and 2	8
Journalism 1 and 2	3
Physical Education	2
Military or Air Science 1 and 2	4

SECOND YEAR

	Hr.
English 3 and 4, or 163 and 164	6
English 5 and 6	6
Journalism 18 and 19	6
Political Science 2	3
History 52 and 53	6
Education 105	3
Military or Air Science 3 and 4	4
Physical Education (women)	2

THIRD YEAR

	Hr.
Journalism 118 and 119	6
Journalism 110 and 120	4
Economics 1	3
Education 106	3
Education 109, or approved elective	2
Music 10	2
Speech 3, 6, 11, or 29	3
Sociology 1 or 104	3
Art 30 or 130	2
Health Education 102	2
Geography 107 or 109	3

FOURTH YEAR

	Hr.
Literature	6
History 150 or 250	3
Journalism 227	3
Journalism 215	2
Journalism 230 and 235	4
Journalism 101 or 201	1
Journalism 212	3
Social studies, upper division, elective	3
Education 124	6
Education 120	4
Education 150-170	2

MINOR IN TEACHER TRAINING IN JOURNALISM FOR NON-JOURNALISM MAJORS

For students in other schools and colleges following one of the University's teacher-training programs, the School of Journalism has set up a teaching minor in journalism. The program is intended for persons who plan to be advisers for high school newspapers and yearbooks as well as teachers.

This minor requires a minimum of 16 hours in journalism (only 14 hr. additional for those whose first teaching field is English, since Journ. 215 is included in that program). It includes the following courses:

REQUIRED COURSES

	Hr.
Journ. 1—Introduction to Mass Communications	2
Journ. 18—News Writing	3
Journ. 19—Copy Editing and Makeup	3
Journ. 113—Principles of Advertising	3
Journ. 215—High School Journalism	2
Journ. 227—History of Journalism	3

RECOMMENDED COURSES FOR ADDITIONAL CREDIT

Journ. 108—The Community Newspaper	2
Journ. 110—Typography and Printing Processes	2
Journ. 120—News Photography	2
Journ. 212—Public Relations	3
Journ. 220—Newspaper and Magazine Article Writing	2
Journ. 230 and 235—Editorial and Law of the Press	4

ELECTIVE COURSES IN JOURNALISM FOR STUDENTS IN TEACHER-TRAINING PROGRAMS

Students in other schools and colleges following one of the University's teacher-training programs may elect any of the courses in journalism *listed above.* Journalism 18 is a prerequisite for Journalism 19. History 52 and 53 are prerequisites for Journalism 227. All other courses may be taken without prior journalism study.

PROGRAM FOR PROSPECTIVE JOURNALISM TEACHERS IN COLLEGES AND UNIVERSITIES

The student should obtain the Bachelor of Science in Journalism degree, then acquire a master's degree in the field, either before or after obtaining some practical experience with the media. The doctorate is essential to fullest advancement.

GRADUATE STUDY

The School of Journalism offers work leading to the degree of Master of Science in Journalism, as well as a graduate minor for students taking the master's degree in a field related to journalism. Graduate students may also elect journalism courses.

Admission. In order to be admitted to the Master of Science in Journalism program, the student must have a baccalaureate degree in journalism or must demonstrate competency in a minimum number of areas prescribed by the School of Journalism. The prospective student also must have had a 3.0 average in undergraduate journalism courses. In compliance with a Graduate School regulation, all students planning to work for a M.S.J. degree must take the Graduate Record Examination prior to admission to the University or soon thereafter.

Requirements. The student will be required to meet the following requirements for the degree:

a. Complete a minimum of 30 semester credit hours, including a thesis with a maximum of 6 hours credit.

b. At least 18 hours of work, including the thesis, must be taken in the School of Journalism.

c. A minor of 9-12 hours credit must be taken outside the School of Journalism.

Examination. On completion of course requirements, the candidate shall be required to pass an oral examination on his thesis and on his competence in his major and minor fields.

COURSES OF INSTRUCTION

1. Introduction to Mass Communications. I, II, S. 2 hr. Recommended for all University students; required of journalism majors. Role of the mass communicator in developing the political, social, and economic fabrics of a democratic society. Organization and function of newspapers, magazines, broadcast stations, and other principal media of mass communications, including the role of advertising.

2. Lectures in Journalism. II. 1 hr. Open to all University students; required of journalism majors. A series of one-hour weekly addresses by specialists representing the principal mass communications industries and professions.

18. News Writing. I. 3 hr. PR: English 1 and 2, with an average of 2.5 or higher for the two courses, or consent. Open to all University students; required of all journalism majors. Two lec. and a 2-hr. lab.-demonstration period. Fundamentals of news gathering and writing.

19. Copy Editing and Makeup. II. 3 hr. PR: Journ. 18. Required of all journalism majors. Two lec. and a 2-hr. lab.-demonstration period. The editing of news copy, headline writing, and introduction to page makeup.

101. Interpreting Current Events. I, II. 1 hr. PR: Sophomore standing. Open to all University students; required of all journalism majors. A study of national and world news developments, their backgrounds and their meanings. May be repeated for a maximum of four hours credit.

108. The Community Newspaper. I. 2 hr. Open to all University students; required in Advertising-Management curriculum. Fundamental problems and techniques in the operation and management of smaller community newspapers. One lec. and 2 lab. hours.

109. Applied Newspaper Management. II. 2 hr. PR: Journ. 108 or consent. Required in Advertising-Management curriculum. Organization, operation, and management of daily newspapers. One lec. and 2 lab. hours.

110. Typography and Printing Processes. I, II, S. 2 hr. Open to all University students; required in Advertising-Management, Public Relations, and Journalism with Specialization curricula. Historical development of type, printing processes, and offset presses and Linotype machine. Identification of type and its application to advertising, newspaper, and magazine production.

113. Principles of Advertising. I, II, S. 3 hr. Open to all University students; required in Advertising-Management, Public Relations, and Journalism with Specialization curricula. Two lec. and a 2-hr. lab. period. Survey of the function of advertising in the American economic system for national and retail advertisers. Study of individual advertising and media, copy and layout problems, appeals, research, production, schedules, federal and state laws affecting advertising, and ethics. Practical laboratory work in writing and layout of advertisements.

114. Newspaper Advertisement Selling. I, II. 2 hr. PR: Journ. 113. Required in Advertising-Management curriculum. One conference and 5 lab. hours arranged. Selling of space, preparation of retail copy, and servicing local newspaper accounts for the *Daily Athenaeum*. Students handle specific assignments, develop new accounts, and apply the mechanics and psychology of space-selling. Enrollment restricted.

115. Advertising Copy and Layout. II. 2 hr. PR: Journ. 113 or Marketing 120. Required in Advertising-Management curriculum. Two lec. and a 2-hr. lab. arranged. Applying tested advertising methods to the preparation of merchandise copy; layout design; production of publication advertising. Emphasis on sales appeals, attention factors, layout planning, illustrations, copy writing, copy testing, and production methods and problems for retail and national advertisers.

116. Radio and Television Advertising. I. 2 hr. Open to all University students; required in Radio-Television curriculum. Historical development of radio and TV as advertising media, including rates, listener surveys, sponsorship problems, and promotion. Writing of radio and television commercials, programs, and preparation of sales and sales promotion plans for stations, national and retail advertisers. Federal regulations affecting broadcast media.

118. Reporting. I, II. 3 hr. PR: A grade of "C" or higher in Journ. 18. Required of majors in all sequences except Advertising-Management. Nine laboratory hours on the *Daily Athenaeum* and one critique hour.

119. Advanced Editing and Makeup. I, II. 3 hr. PR: A grade of "C" or higher in Journ. 19. Required of majors in the News-Editorial curriculum. Nine laboratory hours on the *Daily Athenaeum* and one critique hour.

120. News Photography. I, II. 2 hr. Open to all University students; required in News-Editorial, Public Relations, and Radio-Television curricula. One lec. hour, 1 demonstration hour, and one 2-hr. lab. An introduction to basic photographic principles. Students use several types of cameras, and learn to develop, print and enlarge. No laboratory fee is charged for this course, but each student is required to purchase a photography kit the cost of which will be between $10 and $15. The kit contains all the film and photographic paper he will use during the course; chemicals are provided by the School.

122. Radio and Television Reporting. I. 2 hr. PR: Journ. 18 or consent. Required in Radio-Television curriculum. A lab. course providing training in skills required in the writing and broadcasting of news; practice (including use of tape recorder) in reporting and editing news for programs with various formats. One lec. and 3 lab. hours.

123. Radio and Television Reporting. II. 2 hr. PR: Journ. 122 or comparable experience, and consent. Required in Radio-Television curriculum. A continuation of Journ. 122. Practice in getting, writing, and editing local and regional news for broadcast. One lec. and 3 lab. hours.

124. Television News Photography. I. 2 hr. PR: Journ. 120 or consent. Required in Radio-Television curriculum. Theory and practice in basic motion picture techniques, with emphasis on the special requirements of television news programs. One lec. and 3 lab. hours.

125. Television Film Reporting and Editing. II. 2 hr. PR: Journ. 124. Required in Radio-Television curriculum. Production of film clips for news programs on regional television stations; practice in editing and integration of visual materials for TV newscasts. One lec. and 3 lab. hours.

128. Reporting of Public Affairs. II. 2 hr. PR: Journ. 18 or comparable experience and consent. Required in News-Editorial curriculum. Reporting of routine and extraordinary activities of municipal and county government and of miscellaneous civic areas. Study of trends in local government structure. Visits to courts and public offices. A consideration of media responsibility as interpreters of public affairs.

170. Mechanical Composition. II. 1 hr. Open to all University students. The fundamentals of operation, care and maintenance of the Linotype. The use of mechanically produced type in newspapers and other publications. Special problems in mechanical composition. One lec. and 1 lab. hour.

201. Interpreting Current Events. S. 1 hr. Open to all University juniors, seniors, and graduates. Journalism majors may substitute for the Journ. 101 requirement. A study of national and world news developments, their backgrounds and their meanings.

212. Public Relations. I, II, S. 3 hr. Open to all University students; required in Public Relations curriculum. Principles, problems, and practices concerned in the relationships of businesses, industries, and non-profit organizations with their respective publics; practice in the evaluation of existing PR programs and their refinement for further effectiveness.

213. Industrial Journalism. II. 2 hr. Open to all University students; required in Public Relations curriculum. A study of the relations between industry and its many publics, with emphasis on internal and external company publications as public relations media. Extensive practice in planning and writing materials and in page makeup for industrial publications and trade journals.

215. High School Journalism. II, S. 2 hr. Open to all University students. A survey of scholastic publications problems and techniques; suggested methods of instruction.

220. Newspaper and Magazine Article Writing. II. 2 hr. Open to all University students. A seminar-type course devoted to the writing, editing and marketing of features, including reviews and critical articles.

227. History of Journalism. I, S. 3 hr. PR: Hist. 52 and 53. Open to all University students; required in News-Editorial curriculum. A study of the impact of the American press on the nation; the development of today's communications media from the beginnings in 17th Century England and in the American colonies; an examination of the great names in journalism from the standpoint of their contributions to today's journalism; freedom of the press and its current implications.

230. Editorial and Law of the Press. I. 2 hr. Open to all University students; required in News-Editorial and Public Relations curricula. Writing and analyzing editorials and columns; a study of the editorial page and editorial ethics, problems and policies; a study of the vital elements of libel, privacy, contempt, and other phases of law of the press.

235. Editorial and Law of the Press. II. 2 hr. Open to all University students; required in the News-Editorial curriculum. A continuation of Journ. 230.

239. Seminar in Advertising-Management Problems. II. 2 hr. PR: Senior standing and major or minor in advertising. Required in Advertising-Management curriculum. Current trends in advertising, merchandising, and distribution problems. Students develop individual projects in some phase of advertising or management.

241. Journalism Problems. I, II, S. 1-3 hr. For seniors and graduates. An intensive study, independently conducted, of a specialized area or problem in journalism to be approved by the Dean.

242. Advanced Journalism Problems. I, II, S. 1-3 hr. A continuation of Journ. 241.

243. International Communications. I. 3 hr. International wire services. Coverage of world news in newspapers of the United States and foreign countries; and desirability of a free flow of information to and from the United States. United Nations efforts to lower news barriers will be examined.

301. Research Methods and Literature. I, S. 3 hr. A study of methods common to communications research; critical examination of communications literature; independent research project by each student.

302. Seminar in Communications Theory. II, S. 3 hr. Historical development of the mass media; problems of communicating with the various publics; general problems of contemporary mass media.

312. Seminar in Institutional Relations. II. 3 hr. A study of the problems of public relations and public information officers of educational institutions of higher learning and public service organizations; thorough study of the publics which these officers attempt to reach.

315. Seminar in Journalism Education. S. 1-3 hr. Discussion of journalism educational problems. Each student will do an individual research project planned to provide for his professional development as a teacher of journalism. Emphasis on secondary-school problems.

322. Seminar in Radio-Television Problems. II. 3 hr. Investigation and discussion of current problems and practices in the field of broadcast journalism. The student and the instructor will choose a problem, or a phase of a problem, for analysis and research as the course progresses.

339. Seminar in Advanced Advertising-Management Problems. II. 3 hr. Recently developed ideas and techniques in advertising research, and media management.

343. Seminar in the Foreign Press. II. 3 hr. Studies in legal and communications problems of the international flow of news and opinion; international press codes; communications media of major countries.

380. Thesis. I, II, S. 2-6 hr.

The College of Law

The College of Law, established in 1878, is the oldest professional school in the University.

In 1897 the course of study was increased from one year to two years. Since 1912 the degree of Bachelor of Laws has been conferred only upon satisfactory completion of three years of law-school work. From 1913 to 1924 the requirement for admission was one year of college work; from 1924 to 1931 the requirement was two years and from 1931 to 1958 the requirement was three years, and since 1958 the minimum pre-law requirement for admission to the College of Law has been a baccalaureate degree from an institution of approved standing.

In 1914 the College of Law was admitted to membership in the Association of American Law Schools, an organization of leading schools established for the purpose of maintaining high standards in legal education. The College of Law is on the list of schools approved by the American Bar Association.

The Law Building

The College of Law occupies a fireproof building, erected for its use in 1923. The building is three stories high. It contains two classrooms, two seminar rooms, and a practice-court room, as well as private offices for each member of the staff. The library has a reading room accommodating the entire student body. In addition, the building has a locker room and club rooms for the students.

The Law Library

The Law Library contains more than 66,500 volumes. It includes reports of the highest courts of all states, insular possessions, and the District of Columbia, with the exception of a few volumes no longer obtainable, together with published reports of the lower courts of various states; the National Reporter System, and reports of the Federal courts and commissions; selections of annotated cases; the American and the English encyclopedias of law; and the American Digest. It also contains reports of the English courts, as contained in the English Reprint and the Law Reports, as well as the Irish reports, the Scotch reports, and the more important Canadian and Australian reports; the English statutes and the statutes of the various states, as well as Federal statutory material, including more modern codes and compilations; a complete collection of codes and session laws of the Virginias from the time of early settlers; treatises and textbooks, representative fairly of the legal literature dealing with common law and with civil law, including a large amount of old English historical material.

In addition to these, there are legal periodicals and an extensive collection of bar association reports and legal miscellany; briefs and records of cases decided by the Supreme Court of Appeals of West Virginia, now totaling more than 1,200 volumes, together with briefs and records of the more recent cases in the Circuit Court of Appeals of the United States for the Fourth Circuit.

Admission to the Bar

Under the provision of the West Virginia Code those who receive the degree of Bachelor of Laws from West Virginia University may be admitted to the bar without further examination.

All persons seeking admission to the West Virginia bar, except those who hold the degree of Bachelor of Laws from West Virginia University, are required to pass the state bar examination.

Information as to the bar examinations and as to other matters relating to admission to the bar may be obtained upon inquiry directed to the Secretary, State Board of Law Examiners, Charleston, West Virginia.

The West Virginia Law Review

The *West Virginia Law Review* is published by the College of Law. Student contributions comprise about one-half the material published in the *Law Review*. Members of the second- and third-year classes with high scholastic standing are eligible for membership on the Board of Editors. Participation on the *Law Review* affords an opportunity for advanced, independent research.

The Edward G. Donley Memorial Lectures

In 1954 a fund was established to provide a series of lectures to be delivered annually in memory of Edward G. Donley, a distinguished graduate of the College of Law in the Class of 1899. The donors of the fund were his widow, Mrs. Eleanor T. Donley, and his son, Mr. Robert T. Donley. These lectures, given by an outstanding judge, lawyer, or law school teacher, deal with problems of law and jurisprudence not otherwise adequately covered in the College of Law curriculum.

ADMISSION REQUIREMENTS

Application forms may be obtained from the Office of Admissions. Every applicant for admission must request the registrar of each college or university he has attended to send directly to the Director of Admissions at least one month prior to registration a complete transcript of his record. Evaluation of credentials is made by the Director of Admissions. First-year students are admitted to the College of Law only at the beginning of the first semester.

No applicant will be admitted who previously shall have attended another law school and who shall be ineligible to return to that school in good standing. No applicant will be admitted who has been convicted of a crime which is ground for the annulment or suspension of a license to practice law in West Virginia.

All candidates for the degree of Bachelor of Laws must present a baccalaureate degree from an institution of approved standing. Any degree from such an institution will be regarded as satisfying the requirements for admission provided that, in the opinion of the Scholarship Committee of the College of Law, the degree satisfies the entrance requirement of the Association of American Law Schools.

The College of Law does not prescribe the courses which must be presented for admission. It is essential, however, that a student, before entering upon the study of law, should have a thorough grounding in English, particularly English composition. A student will not be graduated with the degree of Bachelor of Laws if he is markedly deficient in the use of English; and if it appears upon his written examinations that he is seriously handicapped in this regard, he will be required to correct the deficiency before he is permitted to continue in the College of Law. A student should also have a comprehensive grounding in history, particularly American and constitutional history, and in general in enough of the social sciences and humanities to give him a broad informational and cultural background and to develop in him a disciplined reasoning faculty. It is desirable to include some courses in mathematics, accounting, economics, and Latin. The individual needs of the student, however, may well be considered and it is therefore inadvisable to lay down fixed rules.

All candidates for admission to the College of Law are required to take the Law School Admission Test (LSAT), administered by the Educational Testing Service, Princeton, New Jersey.

Irregular Students

A limited number of students with less than the academic credit required of candidates for the degree of Bachelor of Laws will be admitted under the following conditions:

(1) If they have credit for no less than two years of work of collegiate grade in an institution of approved standing, or if they present a statement from the West Virginia State Board of Law Examiners certifying that they have satisfied the prelegal educational requirements of the Board;

(2) If they are at least 23 years of age;

(3) If they present some good reason, acceptable to the Scholarship Committee, indicating that their experience and training have especially equipped them to engage successfully in the study of law, despite lack of the required college credits.

An applicant who has been admitted as an irregular student and who, since his admission, has completed all the requirements for admission as a regular student may, upon the satisfactory completion of one full year of work in the College of Law, apply to the Scholarship Committee for permission to be granted the status of a regular student and to be given credit for law school work of a "C" grade or better taken while he was an irregular student.

Admission to Advanced Standing

Applicants for admission to advanced standing must satisfy the ordinary requirements for admission to the first-year class, must have successfully pursued the study of law in a school which if in the United States is a member of the Association of American Law Schools, and must have received credit for courses equivalent to those required of students in the College of Law. Such applicants must have received an average grade of "C" or its equivalent on all work taken at such other law school or law schools. The extent of credit allowed for work done elsewhere is determined by the Scholarship Committee. A student will not be allowed credit, however, for work carried in another law school unless the student receives thereon a grade of "C" or its equivalent.

Students in Other Colleges

Students of at least senior standing in other colleges or schools of the University may be permitted to take work in the College of Law subject to the regulations of the units where they are registered and of the College of Law, but conditioned in each case upon the consent of the instructor giving the course which such students desire to take.

EXAMINATIONS

Written examinations are held at the end of each semester. Reports of students' grades are made at the end of each semester.

All courses extend either through the entire academic year or through one semester. No credit will be given for less than an entire course except by special order of the Committee on Scholarship.

Final grades are based primarily on written examinations, but in determining a grade, the instructor may give such weight as he deems best to daily recitations or other classroom assignments. He may refuse examination to any student because of poor attendance. A student who is absent from as many as 25 per cent of the scheduled class hours for any given course shall not be permitted to take an examination in the course except by special permission of the faculty.

No student who is absent from any regular examination without being excused therefrom by the faculty of the College of Law will receive credit unless he successfully repeats the course. If absence from a final examination is permitted by the faculty, the student's grade in that course will be withheld until he has passed the next regular examination in the course. Application for leave to be absent from a regular examination must be made before the time at which such examination closes.

To be graduated, a student must obtain an average grade of "C," computed on the basis of all work taken during the first three years or on the basis of the first 81 hours, if the student has not taken the required 81 hours during the first three years.

A student who at the end of the third or any subsequent semester has a grade of "D" or less in more than half his work, computed on the basis of the total number of hours which he has taken, shall be excluded permanently from the College of Law, unless on such work he has obtained an over-all average of "C."

A student who fails to pass half his work, computed on the basis of hours carried during any semester, shall be suspended. Upon application to the Committee on Scholarship, a student so suspended, unless excluded under the preceding rule, may be readmitted, but with the understanding that if he again fails to pass half his work he shall be excluded permanently from the College of Law.

In view of public and professional responsibilities the College of Law reserves the right to drop any student from the rolls whenever, by formal decision reduced to writing, the faculty finds that the student is unfitted to meet the qualifications and responsibilities of the legal profession.

REQUIREMENTS FOR DEGREES

BACHELOR OF LAWS

The degree of Bachelor of Laws is conferred upon those who have met the requirements for entrance to the College of Law as candidates for this degree and who have satisfactorily completed courses aggregating eighty-one credit hours, distributed over six semesters' residence. A semester in residence requires enrollment throughout the semester in courses totaling at least ten credit hours. They must also have obtained an average grade of "C" as hereinafter provided. Except with the permission of the Scholarship Committee, these eighty-one hours must be taken in no more than seven semesters or the equivalent thereof in summer school and the last twenty-seven hours of work must be taken in the College of Law of West Virginia University. When a student, because of admission with advanced standing from another law school, needs less than eighty-one hours in order to satisfy the requirements for this degree, the "C" average required for graduation is computed on the basis of work taken in the College of Law. No student may receive the degree of Bachelor of Laws without at least three semesters in residence at the College of Law and the successful completion of courses aggregating at least one-half of the total number of hours required for graduation.

PROGRAM OF INSTRUCTION

It is the primary aim of the College of Law to give the student an adequate preparation for the practice of law. This involves not merely imparting a knowledge of the legal rules and other materials which courts and administrative tribunals employ, but also, what is equally important, a training in the techniques of legal thinking and, so far as it is feasible to do so, in the practical skills of the profession. Some courses are especially designed to acquaint the student with the realities of practice, including the drafting of legal instruments and personal participation in the trial of cases in Practice Court. To the extent that it is practicable to do so, cases are tried in Practice Court exactly as they would be tried in an ordinary court. General information as to the nature of the training to be acquired in Practice Court and in the prerequisite course on Practice and Procedure is set forth *infra* under *Description of Courses.*

In most courses the work of the student is based chiefly upon the study and discussion of decided cases and statutes, with collateral reading of textbooks and periodicals, elucidated by free discussion in class. In all courses special emphasis is given to those West Virginia cases, statutes and procedures that differ from the general law. Thus, although it is an aim of this College to give to West Virginia students a training which is not available at any other law school, it is at the same time a fundamental objective of this College to give every student such a general and practical legal training that he will be adequately qualified to practice law in any other state.

The overall objective of the College of Law connotes, among other things, an attempt to train the student to discover and solve the ever-varying problems which constantly confront lawyers, courts and administrative tribunals; and this, in essence, envisions cultivating in the students a capacity to think intensely and inquiringly, an ability to make searching analyses of complex fact situations which will disclose the legal questions involved therein, an imaginative resourcefulness in ascertaining possible solutions, a will and patience to investigate their validity and practicability,

and a determination not only to take nothing for granted but to act conscientiously and courageously on his own considered judgment. This also involves an effort to inculcate in the student an appreciation of the lawyer's responsibility to his client and to society, and an understanding of the grave dangers inherent in any infringement of the ethical standards of the profession.

The following program of instruction is designed with these ends in view. The following courses are required: All first-year courses, Pleading and Joinder, Equity, Evidence, Federal Income Taxation, Legal Ethics, Research Seminar, Practice and Procedure, and Practice Court. All other courses are elective. Under very exceptional circumstances, the Scholarship Committee may exempt a student from taking a required course, or may permit a student to take a first-, second-, or third-year course in some other year. Neither fewer than 13 nor more than 16 hours may be carried without the consent of the Scholarship Committee.

DESCRIPTION OF COURSES

The following abbreviations are used in the description and schedule of courses:

A—an alternate course—not given every year.
I—a course given in the first semester.
II—a course given in the second semester.
I and II—a course given throughout the year.
PR—prerequisite.
R—required.

FIRST YEAR

100. Accounting for Lawyers. II. 2 hr. R. This course is designed for students with no previous training in accounting. It has as its objective the preparation of a young lawyer for collaboration with accountants on problems that require the work of both professions for a solution. The principles of elementary bookkeeping are considered only insofar as it is necessary to enable the student to grasp the more fundamental questions of accounting policy. The major portion of the course concerns the application of sound accounting principles to the problems of periodic determination of revenue, matching costs and revenues, inventory methods, valuation of tangible and intangible assets, depreciation and amortization, surplus and reserves, analysis of financial statements, and consolidated financial statements. Practical problems are regularly assigned for outside work. Amory and Hardy, *Materials on Accounting*, 3rd. ed. by Herwitz & Trautman.

102. Judicial Remedies. I. 2 hr. R. Introduction to civil procedure; common-law forms of action; extraordinary legal remedies; statutory remedies; abolition of the forms of action; fusion of law and equity. Casebook to be announced.

104-105. Contracts I. I. 3 hr. R. — Contracts II. II. 3 hr. R. The general principles of substantive law relating to contracts, formal and informal. The creation of somple contracts by offer and acceptance, consideration, Statute of Frauds, joint obligations, third-party beneficiary contracts, assignment of contractual rights and delegation of duties; conditions, performance and breach, excuses for nonperformance, impossibility of performance, discharge of contractual duties, and illegal contracts. Patterson, Goble and Jones, *Cases and Materials on Contracts*, 4th ed., A.L.I. Restatement of Contracts.

106. Criminal Law and Procedure. I. 4 hr. R. A systematic survey of the penal law, the principles and maxims of the general part, the rules of the special part, with the elements of specific crimes against person and property. Criminal law enforcement and criminal procedure at common law, with emphasis on West Virginia practice, including pleading in criminal cases. Perkins, *Cases on Criminal Law and Procedure*, 2d ed.

110. Legal Research and Writing. II. 2 hr. R. The nature and use of law books, with training and practice in research and composition. Lecture, audio-visual instruction, and work assignments, leading students through the various steps in researching, analyzing and explaining legal problems and propositions. Preparation of office memoranda, opinion letters, and briefs. Pollack, *Fundamentals of Legal Research* (2d ed.); Weihofen, Legal Writing Style (1961).

112. Property I. I. 3 hr. R. (a) The law of personal property to the extent it is not covered in other courses. (b) The historical background of real property law. Estates in land. Concurrent ownership of land. Obtaining title to land through adverse possession. Casner and Leach, *Cases and Text on Property.*

113. Property II. II. 3 hr. R. (a) The modern land transaction, which includes the statute of frauds, contract for the sale of land, marketable title, status of vendor and vendee and problems in equitable conversion, the mortgage and trust deed, the deed, delivery in escrow, description of land, covenants of title, recording acts, bona fide purchases for value, and examination of title. Controlling the use of land through legislation and restrictive covenants. (b) The law of landlord and tenant, which includes the creation of the landlord and tenant relations, creation and effect of express and implied covenants in leases, transfers of leasehold and revisionary estates, breach of covenants and conditions, and termination of the landlord and tenant relation. Casner and Leach, *Cases and Text on Property.*

114-115. Torts I. I. 2 hr. R. — Torts II. II. 3 hr. R. Liability for intentional and unintentional acts. Includes assault and battery; false imprisonment; privileged acts; negligence; causation; strict liability; deceit; defamation, and invasion of rights of privacy. Seavey, Keeton and Keeton, *Law of Torts.* 1957 ed.

SECOND YEAR

200. Pleading and Joinder. II. 4 hr. R. Statement of claims; answers; replies, joinder of claims; joinder of parties; pre-trial objections to pleadings and to joinder of claims and parties. Blume and Reed, *Pleading and Joinder;* Cases and Statutes; West Virginia Rules of Civil Procedure.

202. Constitutional Law. I. 3 hr. A study of judicial review, federal and state relations, and individual rights under the United States Constitution, with emphasis on commerce, due process and equal protection, together with related materials on state constitutions and international law. Dowling, *Cases on Constitutional Law*, 6th ed., current supplement and collateral materials.

204. Equity. I. 4 hr. R. This course deals with equity jurisdiction; operation and enforcement of decrees for equitable relief; specific relief against torts; specific performance of contracts, including consideration of the types of contract as to which courts will grant such relief, the extent to which the court will grant relief together with the various "equitable" defenses, such as fraud, inadequacy of consideration, laches, hardship, and lack of mutuality. Chafee and Re, *Cases on Equity*, 4th ed.

206. Federal Courts. II. 3 hr. Jurisdiction and procedure in federal courts. Federal question and diversity jurisdiction; removal jurisdiction and procedure; the law applied in federal courts; venue, process, joinder of parties and actions, and trial of actions in federal courts. McCormick and Chadbourn, *Cases on Federal Courts*, 3rd ed.

208. Income Taxation I. I. 4 hr. R. Introduction to the federal income tax with emphasis on its application to individuals. Gross income; deductions; tax accounting; gains and losses from disposition of property; taxation of the family, including marital arrangements. Surrey and Warren, *Federal Income Taxation*, 1960 edition integrated with 1961 supplement; Commerce Clearing House, *Federal Taxation - Current Law and Practice*, current edition.

209. Income Taxation II. II. 2 hr. Application of federal income taxation to trusts, partnerships and partners, corporations and shareholders; corporate reorganizations. Income Taxation I is a prerequisite. Surrey and Warren, *Federal Income Taxation,* 1960 edition integrated with 1961 supplement; Commerce Clearing House, *Federal Taxation—Current Law and Practice,* current edition.

210. Moot Court. I. 2 hr. Study and training in appellate practice. Individual research and group discussion on problems in presentation of cases before appellate courts. Preparation of appellate briefs based on the records of actual cases and presentation of oral arguments before judges selected from the West Virginia Bar.

212. Property III. 1 and II. 5 hr. (a) Most of the time in the course is devoted to the types and problems of future interests which arise in the construction of deeds and wills with particular emphasis on problems of construction, powers of appointments, class gifts and the rule against perpetuities. (b) Descent and distribution of property under intestacy laws. The law of advancements. Laws protecting widows and children from disinheritance. (c) The law of wills. (d) Administration of decedents' estates. Simes, *Cases on Further Interests,* 2d ed.; Leach, *Cases and Text on the Law of Wills,* 2d ed. (1960 revision).

214. Trusts. II. 4 hr. The nature of a trust, its creation and elements; the transfer of a beneficiary's interest; the administration of trusts; the termination and modification of the trust; charitable trusts; liabilities to and liabilities of third persons; resulting and constructive trusts. Scott. *Cases on Trusts.* 4th ed.

THIRD YEAR

300. Conflict of Laws. I and II. 4 hr. The legal problems arising when an occurrence cuts across state or national boundaries, emphasizing questions of characterization, jurisdiction, foreign judgments, recognition and application of foreign law, in selected fields of law, including contracts, torts, property, domestic relations, administration of estates and corporations. Cheatham, Goodrich, Griswold, and Reese, *Cases and Materials on Conflict of Laws.*

302. Corporations. I. 4 hr. The law of business corporations including formation of such corporations; corporate powers and their distribution between shareholders, directors, officers and agents, and the manner of exercising such powers; creation and maintenance of corporate capital; the issuance and marketing of securities, and the rights of shareholders with respect to dividends. Baker and Cary, *Cases and Materials on Corporations,* 3rd ed. Abridged.

306. Estate and Gift Taxation. I. 2 hr. The course concerns the application of the federal transfer taxes (the gift tax and the estate tax) and the West Virginia inheritance tax. Basic application; inter vivos transfers subject to both transfer taxes; joint interests; life insurance; valuation; exemptions, exclusions and deductions, marital deductions and split gifts. Statutory materials on the West Virginia inheritance tax are explained. Casebook to be announced. *Federal Taxation—Current Law and Practice* (Surrey and Warren: Commerce Clearing House.)

308. Evidence. I. 4 hr. R. A study of the rules, principles and practice of the law of evidence, with primary emphasis on jury trials and limited materials on trials in administrative agencies and other tribunals, covering judicial notice, real, demonstrative, testimonial and circumstantial evidence, hearsay and other exclusionary rules, privileges, confidential relationships, witnesses and other related subjects. Proposed Uniform Rules of Evidence are integrated throughout course. Audio-visual and other demonstrative materials. Morgan, Maguire and Weinstein, *Cases and Materials on Evidence,* 4th ed., and supplemental readings.

310. Lawyers' Professional Responsibility. I. 1 hr. R. This course deals with the lawyer's professional responsibility in the administration of justice and in society generally. The Canons of Professional Ethics and the Canons of Judicial Ethics are required reading. Lectures, case analyses and class discussions deal with the supervision and discipline of lawyers, unauthorized practice of law, advertising by lawyers, fees and charges, confidential communications, conflicting interests, relation of lawyers to the courts, juries, clients and witnesses as well as other lawyers, and other problems in the area of professional ethics. Trumbull, *Materials on the Lawyer's Professional Responsibility* (1957) and collateral materials.

311. Office Practice. II. 1 hr. Practical problems in law office practice as distinguished from trial practice; but including law office phases of trial practice. Lectures by visiting attorneys in particular areas of practice. *Text materials selected.*

312. Practice and Procedure. I. 4 hr. R. PR: Pleading and Joinder. This course deals primarily with the fundamental procedural phases of a civil action; issuing, requisites and service of process; appearances; default procedure; continuances; the right to a jury trial and the processes by which a jury is selected; trial by the court without a jury; pre-trial conferences; right to open and close; objections; order of proof; dismissals; summary judgments; motions for directed verdicts or for judgments; instructions to juries; arguments of counsel; deliberations of the jury; verdicts, new trials; relief from judgments or orders; appellate procedure. Attention also is given to attachment, garnishment and suggestion. Special attention is given to the procedure applying to preliminary injunctions. Joiner, *Trials and Appeals;* Cases, Text, Statutes, Rules and Forms; West Virginia Rules of Civil Procedure.

314. Practice Court. II. 2 hr. R. PR: Pleading and Joinder; Practice and Procedure. Students view motion pictures or are given statements of facts which provide information similar to that furnished by clients and witnesses to counsel. Having interviewed these students, counsel for plaintiffs are expected to select proper remedies and counsel for defendants are expected to interpose appropriate defenses. The court is called The University Court and performs the functions of a circuit court of the state. For purposes of venue, it may function as The University Court of any county in the state. Cases are litigated, from the filing of the complaint and the issuance of process to final judgment or decree, as in actual practice. The presiding judges are judges of the various circuit courts and of the Supreme Court of Appeals of the state. Members of the class impersonate litigants and witnesses and serve as officers of the court.

316. Research Seminar. II. 2 hr. R. Each third-year student is required to take at least one of the seminars offered each year. Enrollment will be limited so as to provide approximately the same number of students in each seminar. In so far as possible, however, assignment to the seminars will be in accordance with the preferences indicated by the students. The following seminars are offered: Estate Planning, Evidence, Land Transactions, and Procedure.

SECOND OR THIRD YEAR

250. Administrative Law. II. 3 hr. A comprehensive outline of agency procedures rather than intensive study of any particular agency. Attention is directed primarily, though not exclusively, to federal agencies. The administrative process itself, including the operation of the Administrative Procedure Act, receives primary emphasis in an effort to qualify students for effective client representation in dealing with the agencies. Judicial and other outside controls of agency action are studied and the extent to which constitutional limitations apply is touched on. Davis, *Administrative Law Cases* (1959).

252. Business Associations. I. 3 hr. A. This course covers the various types of business associations other than corporations. Conduct of business by agents,

including the employment relation and workmen's compensation, is considered in some detail. Also considered are joint ventures, partnerships, unincorporated associations, joint stock associations, and business trusts. Latty and Frampton, *Basic Business Associations; Cases, Text and Problems.*

254. Coal, Oil and Gas. II. 3 hr. A. Nature of ownership of these subsurface minerals; methods of transferring the ownership thereof; exploitation by means of leases; protection from damage against wrongful taking thereof; partition among co-owners; analysis of leasehold estates, the habendum clause, the drilling clause, lessee's duty of development, assignment of leases and transfers of the reversion; rents and royalties; tort liabilities in connection with operation; coal mining rights and privileges. Summers, *Cases on Oil and Gas.*

256. Creditor's Rights. I. 3 hr. A. Procedures for enforcing the rights of creditors. Individual procedures (execution, garnishment, suggestion and creditors' bills); fraud on creditors; collective procedures (general assignments, creditors' agreements, and bankruptcy). Hanna and MacLachlan, *Cases on Creditors' Rights,* 5th ed., also Hanna and MacLachlan, *Bankruptcy Manual,* 5th ed.

260. Domestic Relations. II. 2 hr. The law in its relation to creation, stability and breakdown of domestic relations, including engagement, marriage, annulment, separation, divorce, alimony and support, custody, legitimacy and adoption. Compton, *Cases on Domestic Relations.*

262. Insurance. II. 2 hr. A. This course concentrates on the special problems and documents which revolve about the insurance contract in the fields of marine, life, fire, accident, disability and liability insurance. Among these problems are definition of the risk, definition of the persons insured, defenses, measurement of losses, extent of underwriter's liability, subrogation, contribution between underwriters, and determination of insurance rates. Vance's *Cases on Insurance,* 4th ed. by Fegan (1952).

264. Labor Law. II. 3 hr. A. Common law doctrines affecting the union movement are briefly surveyed, but the principal aim of the course is the National Labor Relations Act, its amendments and the policies promulgated under it by the National Labor Relations Board. Casebook to be announced.

266. Legislation. I. 2 hr. A. A survey of the legislative process; relation of the legislative to the judicial and executive branches; legislation and common law rules; legislative procedure; elements of statutory interpretation; fact and policy determination of the legislative process; legislative drafting. Casebook to be announced.

268. Local Government Law. I. 2 hr. A. Nature and function of local government, counties, cities, towns and villages, as well as permanent and *ad hoc* agencies and districts. Creation, annexation, dissolution, rights and duties (zoning, appropriation of funds and contracts), powers and liabilities (contract and tort), personnel, municipal finance (debt limitation and special assessment). Casebook to be announced.

270. Negotiable Instruments. I. 3 hr. The law dealing with bills, notes, and checks is examined in conjunction with that concerning the relationship of banks with depositors and with other banks. The course aims to explain how our commercial credit arrangements operate and how claims based on such arrangements are created and protected. Aigler, *Bills and Notes,* 2d. ed.

272. Sales. II. 3 hr. A. The course concentrates on the sale of goods and the financing arrangements connected with such sales. Heavy emphasis is placed on modern statutory rules affecting such transactions. Honnold, *Law of Sales and Sales Financing,* 2d ed. (1962).

274. Suretyship. II. 2 hr. A. This course is devoted to the discussion of the general principles of surety and guaranty. Special attention is given to the applicable section of the Statute of Frauds; the surety's rights before and after payment;

the surety's defenses including the use of set-off and counterclaim, alteration and discharge. Simpson, *Cases on Suretyship.*

280. Legal Research. 1 or 2 hr. as needed

SCHEDULE OF COURSES 1964-65*

Casebooks and other materials to be used in the courses are indicated under *Description of Courses.*

FIRST YEAR

100.	Accounting for Lawyers. II. 2 hr. R.	Mr. Collins
102.	Judicial Remedies. I. 2 hr. R.	Mr. Lugar
104.	Contracts I. I. 3 hr. R.	Mr. Donley
105.	Contracts II. II. 3 hr. R.	Mr. Donley
106.	Criminal Law and Procedure. I. 4 hr. R.	Mr. Lorensen
110.	Legal Research and Writing. II. 2 hr. R.	Mr. Dadisman
112.	Property I. I. 3 hr. R.	Mr. Brown
113.	Property II. II. 3 hr. R.	Mr. Brown
114.	Torts I. I. 2 hr. R.	Mr. Morris
115.	Torts II. II. 3 hr. R.	Mr. Morris

SECOND YEAR

200.	Pleading and Joinder. II. 4 hr. R.	Mr. Lugar
202.	Constitutional Law. I. 3 hr.	Mr. Dadisman
204.	Equity. I. 4 hr. R.	Mr. Morris
206.	Federal Courts. II. 3 hr.	Mr. Lorensen
208.	Income Taxation I. I. 4 hr. R.	Mr. Collins
209.	Income Taxation II. II. 2 hr.	Mr. Collins
210.	Moot Court. I. 2 hr.	Mr. Lugar
212.	Property III. I and II. 5 hr.	Mr. Brown
214.	Trusts. II. 4 hr.	Mr. Colson

THIRD YEAR

300.	Conflict of Laws. I and II. 4 hr.	Mr. Collins
302.	Corporations. I. 4 hr.	Mr. Colson
306.	Estate and Gift Taxation. I. 2 hr.	Mr. Collins
308.	Evidence. I. 4 hr. R.	Mr. Dadisman
310.	Legal Ethics. I. 1 hr. R.	Mr. Dadisman
311.	Office Practice. II. 1 hr.	Mr. Dadisman
312.	Practice and Procedure. I. 4 hr. R.	Mr. Lugar
314.	Practice Court. II. 2 hr. R.	Mr. Lugar

*The schedule of courses as given here is subject to change.

316. Research Seminar. II. 2 hr. R.

Estate Planning	Mr. Collins
Evidence	Mr. Dadisman
Land Transactions	Mr. Brown
Procedure	Mr. Lugar

SECOND OF THIRD YEAR

250. Administrative Law. II. 3 hr.	Mr. Dadisman
252. Business Associations. I. 3 hr. A.	Mr. Brown
260. Domestic Relations. II. 2 hr.	Mr. Morris
268. Local Government Law. I. 2 hr. A.	Mr. Lorensen
270. Negotiable Instruments. I. 3 hr.	Mr. Morris
272. Sales. II. 3 hr. A.	Mr. Lorensen
274. Suretyship. II. 2 hr. A.	Mr. Morris

West Virginia University Medical Center

HISTORICAL STATEMENT

The West Virginia University Medical Center has been conceived, planned, and built for the primary purpose of providing the best possible facilities for the education of students in dentistry, medicine, nursing, pharmacy, and related health fields.

The Basic Sciences Building was first opened for instructional purposes in September, 1957.

The School of Dentistry was established by an act of the West Virginia Legislature on March 9, 1951. The first appointment made was that of a consultant to the technical staff for the planning of the Medical Center. On May 1, 1953, the consultant was appointed Dean of the School of Dentistry. The first class of dental students began its studies in September, 1957, and was graduated on June 5, 1961. The twenty-three members of that class were the recipients of the first dental degrees ever awarded in the State. At the present time, more than one hundred and twenty-five students are enrolled in the full four-year accredited dental program. In September, 1961, the first students were enrolled in the school's degree program in dental hygiene.

The School of Medicine, which had been offering a two-year program since 1912, moved from the Main Campus to the Medical Center in 1957. In September, 1960, the two-year program was changed to a four-year program. This coincided with the opening of the new 522-bed University Hospital. In June, 1962, the first M.D. degrees were awarded to fifteen students. Sixty students are now admitted each year to the first-year class.

The School of Medicine for the school year 1945-46 announced and put into operation a curriculum in Medical Technology leading to a degree of Bachelor of Science in Medical Technology. The first graduates were awarded a combined degree by the College of Arts and Sciences and the School of Medicine in June, 1947. In July, 1961 a Division of Medical Technology was established in the School of Medicine. At the present time thirty-one students are enrolled in the program.

The School of Nursing registered its first class of twenty-eight students in the fall of 1960. The nursing program is a four-year degree program and admits approximately sixty qualified students each year.

Pharmacy was first offered at the University as a department in the School of Medicine, beginning in 1914. The Department of Pharmacy was changed to the College of Pharmacy in 1936. The name was changed from College of Pharmacy to School of Pharmacy in 1958 when the program was moved from the Main Campus to the Medical Center. In September, 1960, the School changed from a four-year to a five-year program including two years of Pre-Pharmacy.

EDUCATIONAL FACILITIES

LIBRARY

The Medical Center Library serves the students, faculty, and staff of the four schools and the University Hospital. In addition, its services are available to the health professions throughout the state, and to the general public when needed.

The Library is located on the second floor of the west wing of the Basic Sciences Building and contains 28,000 square feet of space. It is designed to seat 300 people and to hold up to 140,000 volumes in its six stack levels.

There are approximately 63,000 bound volumes now on the shelves. Currently received are more than 1,000 domestic and foreign periodicals titles.

The Medical Center Library and the University Library maintain an active interlibrary loan service. Material not owned by either library may be borrowed through loans from libraries in other cities.

The Library is open except on holidays from 8:00 A.M. to 10:00 P.M., Monday through Friday; from 9:00 A.M. to 5:00 P.M. on Saturdays; and from 1:00 P.M. to 9:00 P.M. on Sundays. During the Summer Session the weekday hours are from 8:00 A.M. to 5:00 P.M. Changes in scheduled hours are posted in advance.

CLASSROOMS AND LABORATORIES

All activities within the Medical Center are directly or indirectly related to the teaching program. Each School and Department has planned and provided adequate teaching space. Laboratories are designed so that all necessary laboratory equipment can be brought to the student. Experiments and teaching procedures can be conducted efficiently.

AUDITORIUM

The auditorium seats 450 persons and it is used for meetings, seminars, conferences, and sessions with combined classes of students. The stage is used for clinical conferences or for programs requiring group participation.

TELEVISION

The Basic Sciences Building has a conduit system for future closed-circuit color television. The Auditorium is one of the main points of origin for such programs. However, programs can originate from certain laboratories as well as from the University Hospital. Receivers can be placed in all laboratories and lecture rooms so that programs can be viewed by students throughout the building.

DENTAL CLINICS

Clinical training and experience constitute a major part of the curriculum for junior and senior dental students. The facilities provided for undergraduate dental students, graduate dental students, and the dental hygiene students include one hundred fifty work stations and all the necessary related laboratories. Patients are accepted for treatment if their dental problems are of teaching value and if a student is available for assignment. The student assigned to each case must work under the close supervision of a faculty member. The clinic program not only provides practical experience for the student but also renders a much-needed service to several hundred patients annually.

UNIVERSITY HOSPITAL AND OUT-PATIENT CLINICS

The West Virginia University Hospital and its out-patient clinics opened in the summer of 1960 as integral units of the Medical Center. The Hospital will accommodate 522 patients and the clinics will provide for up to 500 out-patient visits per day.

All recognized medical specialist services are provided through the staff of the respective clinical departments of the School of Medicine. Facilities and staff are available for clinical laboratory service, diagnostic and therapeutic X-ray services, and such special examinations as electrocardiography, cardiac catheterization, and electroencephalography. Emergency facilities are available at all times.

The Hospital and clinics constitute the main teaching laboratory for clinical students in medicine and nursing, and function also in the education and training of interns, resident physicians, and post-graduate practitioners of the various healing arts.

ADMISSION REGULATIONS

West Virginia University does not limit its applicants to residents of the State; however, priority will be given to West Virginia residents who meet specified requirements. Preference will be given to those applicants who have the higher scholastic

records; who make the better scores on the admissions tests; who present official recommendations on forms supplied by the Assistant Registrar, Medical Center; and who, in all other respects, give promise of doing satisfactory work as students and as professional persons.

Careful consideration is given to those personal qualifications which have a bearing upon fitness of the applicant for the study and practice of the profession of his choice.

HOW TO APPLY

Applicants for admission to any of the schools at the Medical Center should write to the Assistant Registrar, Medical Center, West Virginia University, who will furnish official blanks upon which formal application must be made.

Application Fee

A $10.00 application fee is required and must accompany the application of all but Dental Hygiene students.

Re-Application

Any applicant who is refused admission, or who fails to enroll after acceptance, must re-apply in the regular manner if he wishes consideration for a subsequent year.

ADVANCE DEPOSIT FEE

Each applicant, except those applying to the School of Nursing and the Division of Dental Hygiene, is required to deposit $50.00 before his name is entered upon the official list of those accepted for admission to any of the programs at the Medical Center. Applicants applying to the School of Nursing and the Division of Dental Hygiene deposit $40.00 if they accept an offer of admission. If the applicant enrolls in the program of his choice, this sum is applied to the tuition of the first semester. If an application for admission to the School of Medicine is withdrawn after the candidate has been offered a place and has made a deposit, such deposit may be refunded at any time prior to January 15 of the year in which enrollment is anticipated. No deposit will be refunded after this date. If an applicant fails to enter any other program at the Medical Center, this deposit fee is forfeited by the applicant.

IMMUNIZATIONS

It is required that during the first semester of the first year all students must complete certain prescribed immunization and diagnostic procedures.

Suspensions

In view of public and professional responsibilities the faculty of each of the professional schools of West Virginia University shall have the authority to drop any student from its rolls whenever, by formal decision reduced to writing, the faculty finds that the student is unfit to meet the qualifications and responsibilities of the profession.

The Basic Sciences

The Departments of Biochemistry, Gross and Neurological Anatomy, Microbiology, Microanatomy and Organology, Pathology, Pharmacology, and Physiology are grouped together because they offer courses, both required and elective, to students in each of the various Schools.

Several of these Departments also have Masters and Ph.D. degree programs. Students interested in working for such an advanced degree or taking graduate courses should contact the Chairman of the Department and consult the Graduate School *Announcements* for further details.

COURSES OF INSTRUCTION

GROSS AND NEUROLOGICAL ANATOMY

Associate Professor Hewes; Assistant Professor Goodge; Instructors Montgomery and Van Winkle; Clinical Assistant Professors Shaffer and Smith.

101. Principles of Human Anatomy. I. 3-4 hr. PR: Consent. Lectures and demonstrations on the anatomy of the human body, with particular attention to morphological concepts. Designed for students in the paramedical sciences.

201. Gross Anatomy. (For Medical Students, First Year). I and II. 6 hr. per semester, total of 12 hr. PR: Gen. Zool. and consent. A detailed study of the human body with a complete dissection.

203. Neuroanatomy. (For Medical Students, First Year). II. 4 hr. PR: Consent. A gross and microscopic study of the central nervous system.

206. Gross Anatomy. (For Dental Students). I and II. 4 hr. per sem., total of 8 hr. PR: Gen. Zool. and consent. A study of the human body including dissection.

208. Neuroanatomy. (For Dental Students). II. 2 hr. PR: Consent. A gross and microscopic study of the central nervous system.

301. Advanced Gross Anatomy. I, II, S. 2-6 hr. per sem. with a total of 36 hr. available. PR: Anat. 201 and consent. A morphological and functional analysis of a selected region. With dissection.

302. Advanced Developmental Anatomy. I, II, S. 2-6 hr. per sem. with a total of 18 hr. available. PR: Anat. 201 and consent. Detailed developmental anatomy of the fetal period and childhood. With dissections and analysis of variations and malformations.

303. Seminar. I, II, S. 1-6 hr. PR: Consent. Selected areas of study including historical aspects.

304. Applied Anatomy. I, II. 2-6 hr. per sem. with a total of 36 hr. available. PR: Anat. 201 and consent. A regional study primarily intended for physicians and surgeons.

350. Research in Gross and Neurological Anatomy. I, II, S. 1-6 hr. PR: Anat. 201, 203 and consent.

MICROANATOMY AND ORGANOLOGY

Professor Williams; Associate Professors Higginbotham and Reyer.

109. Oral Histology. (For students of Dental Hygiene). II. 2 hr. A study of histological structure of the teeth and tissues of the oral cavity and the morphological development of these structures.

205. Microanatomy and Organology. (For Medical Students, First Year). I. 6 hr. PR: Gen. Zool. or equiv. Structure, function and embryology of tissues and organs.

209. Microanatomy and Organology. (For Dental Students). II. 6 hr. PR: Gen. Zool. Structure, function and embryology of tissues and organs with emphasis on teeth and supporting structures.

305. Experimental Embryology. II. 3 hr. PR: Biochemistry, Embryol., Microanat. 205 or 209, and consent. An analysis of development, differentiation and regeneration.

351. Advanced Microanatomy and Organology. I, II, S. 2 hr. PR: Microanat. 205 or 209 and consent. An extension of the major topics included in Microanat. 205 or 209 with special emphasis on recent contributions.

352. Research in Microanatomy and Organology. I, II, S. 2-6 hr. PR: Microanat. 351 and consent.

353. Special Topics in Microanatomy. I, II, S. 2-6 hr. PR: Microanat. 205 or 209 and consent. Detailed consideration of selected topics. Includes literature reviews, special techniques and laboratory studies.

BIOCHEMISTRY

Professor Krause; Associate Professors Lotspeich, Shelton, Burke, and Canady; Assistant Professors Gangloff, Gilbert, Wirtz; Part-Time Instructor Robinson.

139. General Biochemistry. (For students in Home Economics, Medical Technology, and Pharmacy). I. 4-5 hr. PR: Inorganic and Organic Chem. Quantitative analysis desirable. Open to other qualified students.

223. Biochemistry. (For Dental Students). I. 7 hr. PR: Organic Chem. A study of the chemical and physiochemical processes which take place in the human body.

231. Biochemistry. (For Medical Students, First Year). I. 8 hr. PR: Organic Chem. Content similar to that of Biochem. 223.

232. Biochemistry. (For 2nd year Medical Students and Graduate Students). II. 2 hr. PR: Biochem. 231. A continuation of Biochem. 231.

237. Seminar in Biochemistry. I, II. 1-6 hr. per sem. PR or Conc: Biochem. 223 or 231. Presentation and discussion of special topics.

239. Clinical Chemical Techniques. (Primarily for Medical Technology Students). II. 4 hr. PR: Biochem. 139, 223, or 231. Open to other qualified students.

330. Biochemical Preparations. I, II. 2-5 hr. PR: Biochem. 223 or 231 or equiv. Emphasis on biochemical methods.

331. Radiobiology. II. 3 hr. PR: Biochem. 223 or 231 or equiv. Emphasis on nature and measurement of radioisotopes and their biological applications.

332. Enzyme Kinetics. II. 3 hr. PR: Biochem. 139, 223, or 231. For graduate students or other properly qualified students. An introduction to the physical mechanisms of enzyme action.

334. Special Topics, I, II, S. 1-18 hr. PR: Consent.

337. Biochemistry of the Amino Acids and Proteins. I. 3 hr. Agr. Biochem. 290 or Med. Biochem. 231. Offered in 1965-1966 and every third year.

338. Biochemistry of the Lipids. II. 3 hr. PR: Biochem. 231 or equiv. Offered in 1964-65 and every third year.

MICROBIOLOGY

Professor Slack; Associate Professors Dyson and Mascoli; Assistant Professors Burrell, Deal, Gerencser, and Hall.

26. Microbiology. II. 3 hr. (For students in the Paramedical Sciences). A study of pathogenic microorganisms.

220. Microbiology. (For Pharmacy Students). II. 5 hr. PR or Conc: Organic Chem. A detailed study of pathogenic microorganisms.

221. Microbiology. (For Medical Students, Second Year and Graduate Students). I. 7 hr. PR: Orgonic Chem., Biochem. A detailed study of pathogenic microorganisms.

222. Parasitology. (For Medical Students, Second Year). II. 2 hr. PR: Consent. Introduction to animal organisms as human pathogens and vectors of disease.

223. Pathogenic Microbiology. (For Medical Technology Students). II. 5 hr. PR or Conc: Organic Chem. A detailed study of pathogenic microorganisms.

224. Parasitology. (For Medical Technology Students). II. 4 hr. PR: Consent. Study of animal parasites and vectors of disease.

225. Microbiology (For Dental Students). I. 5 hr. PR: Organic Chem. A detailed study of pathogenic microorganisms.

226. Basic Microbiology. (For Graduate Students). I. 4 hr. PR: Organic Chem.; Biology recommended; consent. A detailed review of the major groups of microorganisms including morphology and physiology.

227. Special Problems in Microbiology. I, II, S. 1-6 hr. per sem. with a total of 24 hr. available PR: Microbiol. 226 or equiv.

228. Diagnostic or Determinitive Microbiology. I, II, S. 1-6 hr. per sem. with a total of 24 hr. available. PR: Microbiol. 226 or equiv. Diagnostic procedures as aids to diagnosis of human diseases and methods for the identification of microorganisms.

321. Bacterial Physiology. I. 3-4 hr. (lect. 3 hr. with lab. 4 hr.) PR: Microbiol. 226 or equiv.; Organic Chem.; Biochem. or Conc. Physiological studies on bacteria including nutrition, metabolic pathways, growth and death.

322. Microbial Genetics and Cytology. II. 4 hr. PR: Microbiol. 226 or equiv. Principles of microbial genetics and advanced cytological techniques.

323. Immunology. II. 4 hr. PR: Microbiol. 226 or equiv. A thorough study of antigens, antibodies, and their reactions both in vitro and in vivo and including the hypersensitivity phenomenon.

324. Virology. II. 4 hr. PR: Microbiol. 226 or equiv. A comprehensive study of human, animal, and bacterial viruses.

325. Medical Mycology. I. 3 hr. PR: Microbiol. 226 or equiv.; Mycology 203 and 330 are recommended. A study of the fungi which infect humans with the emphasis on isolation and identification.

326. Seminar. I, II, S. 1-6 hr. PR: Microbiol. 226 or equiv. This will include the history of microbiology.

327. Research in Microbiology. I, II, S. 1-6 hr. PR: Microbiol. 226 or equiv.

PATHOLOGY

Professor Albrink; Associate Professors Conn, Kelln, Stuart; Assistant Professors Anido, Chamberlain, Fink, Gilbert, and Napoli; Instructor Stevenson; Clinical Assistant Professors Diaz-Perez, Laqueur, and Tolstoi; Clinical Instructor Giarritta.

228. Pathology. (For Dental Students). II. 4 hr. PR: Microscopic Anat. 209. A study of disease processes with emphasis on fundamentals.

251. General Pathology. (For Medical Students, Second Year). I. 10 hr. PR: Consent. Includes gross and microscopic studies with demonstrations. (Note: Appropriate material in Clinical Pathology is integrated in Path. 251 and 252).

252. General Pathology. (For Medical Students, Second Year). II. 8 hr. PR: Consent. Includes gross and microscopic studies and materials in clinical pathology.

253. Oral Pathology. (For Dental Students). I. 3 hr. A study of the etiology of the diseases of the teeth and their investing structures.

256. Advanced Pathology. I, II. 3 hr. PR: Consent, Path. 228 or 251. Microscopic and gross specimens from selected autopsies.

351. Research. I, II. 1-6 hr. PR: Consent.

PHARMACOLOGY

Professors Saxe and Watts; Associate Professors Darby and Kenny; Assistant Professors Fleming and Robinson; Instructors Greene and Schmidt.

60. Pharmacology. II. 3 hr. (For students in the Paramedical Sciences). Physiology, chemistry, pharmacodynamics, toxicology, and therapeutic use of drugs as used in nursing practice.

260. Pharmacology. (For Dental Students). I. 5 hr. PR: Physiology. Chemistry, pharmacodynamics, toxicology, and therapeutic use of drugs.

261. Fundamentals of Pharmacology. (For Pharmacy Students). I. 5 hr. PR: Physiology. Classification, pharmacodynamics and toxicology of therapeutic agents.

262. Pharmacology. (For Medical Students, Second Year). II. 6 hr. PR: Physiology. Chemistry, pharmacodynamics, toxicology, and therapeutic use of drugs.

265. Seminar in Pharmacology. I, II. 1 hr. per sem. PR or conc: Pharmacol. 262 or graduate status in basic medical sciences.

360. Special Topics in Pharmacology. I, II, S. 1-6 hr. per sem. Assigned study in pharmacodynamics, autonomic and cardiovascular pharmacology, chemotherapy, bioassay and the biochemistry of drug action.

362. Advanced Pharmacology. I, II, S. 1-6 hr. per sem. PR: Pharmacol. 262 or equiv. Lectures and laboratory study in advanced phases of pharmacology; development of research techniques.

367. Research in Pharmacology. I, II, S. 1-6 hr. per sem. PR: Pharmacol. 262 or equiv.

PHYSIOLOGY

Professors Northup, Penrod, Stickney, Van Liere; Associate Professor Lindsay; Assistant Professors Blount and Gladfelter.

101. Principles of Human Physiology. I. 3 hr. (For students in the Paramedical Sciences). Normal functions of the human organism. Lecture, demonstration, and laboratory.

141. Elementary Physiology. I. 4 hr. (For Pharmacy and Medical Technology Students). PR: Biol. 1, 2, or Zool. 1, 2; PR: or conc: Chem. 131 (organic chem.).

241. Human Physiology. (For Medical Students, First Year). II. 9 hr. PR: Comparative Anat., Biochem. 231. A study of the functions of organs.

243. Human Physiology. (For Dental Students). I. 6 hr. PR: General Zool., Organic Chem. Normal functions of the body with emphasis on aspects pertaining to dentistry.

244. Seminar in Physiology. I, II. 1-6 hr. (1 hr. per sem.). PR: Graduate status.

340. Special Topics. I, II, S. 1-12 hr.

342. Advanced Physiology. I, II, S. 1-6 hr. per sem. PR: Physiol. 241 or 243 or equiv. Historical review, discussion of latest developments.

344. Physiology. Introduction to Biophysics. S. 2 hr. PR: Biol. 2 or Zool. 2; College Algebra.

346. Research in Physiology. I, II, S. 1-12 hr.

The School of Dentistry

GENERAL INFORMATION

ADMINISTRATION

Adminstration within the School of Dentistry is the responsibility of the Dean, who is assisted in this function by a Faculty Council. The Council is made up of those full professors who are also chairmen of their respective departments. Its general purpose is to serve in an advisory capacity to the Dean in carrying out the established policies of the School of Dentistry and of the University.

WHEN TO APPLY FOR ADMISSION

Application for admission in September, 1965, should be made promptly upon completion of the 1963-64 school year, even if the applicant has not completed all the requirements listed below. However, final acceptance of a student is contingent upon the satisfactory completion of all requirements. Applications are accepted until a class has been filled, but since classes normally are filled before September, an early application is important.

Applicants for admission must present evidence of having completed successfully two full academic years (60 semester or 90 quarter hours) of work in the liberal arts in an accredited college. The predental courses normally must include the following:

English Composition and Rhetoric	minimum 6 hr.
Zoology or Biology (with laboratory)	minimum 6 hr.
Inorganic Chemistry (with laboratory)	minimum 6 hr.
Organic Chemistry (with laboratory)	minimum 6 hr.
Physics (with laboratory)	minimum 6 hr.

Although the minimum requirement for admission is two years of college work, many prospective students prefer to continue their predental education for three and even for four years. In case the student extends his predental training beyond the minimum requirement, it is recommended that he elect courses in the humanities and the social sciences in order to acquire a broadened intellectual background for both the study and the practice of dentistry.

Good physical and mental health are essential for the successful study and practice of dentistry. Good eyesight is particularly important. The applicant who is admitted to the School of Dentistry must present, on or before the day of enrollment, a certificate from his ophthalmologist stating the condition of his eyes, and if any correctible defects in vision exist he shall present evidence that proper corrections have been made.

DENTAL APTITUDE TEST

Each applicant is required to take the Dental Aptitude Test. This test is given at testing centers throughout the United States and its possessions and in Canada. Application cards may be secured by writing to the Division of Testing of the Council on Dental Education, 222 East Superior Street, Chicago 11, Illinois.

PERSONAL INTERVIEW

Applicants who have complied with all preliminary requirements for admission are required to appear for a personal interview. The Committee on Admissions will advise the applicants of the time and place of the interview.

CURRICULUM

The School of Dentistry of West Virginia University offers an undergraduate program of education consisting of four academic years. The requirements for admission (see page 393) and the curriculum conform to standards established by the national accrediting agency for dental education, the Council on Dental Education of the American Dental Association. These standards also are accepted by the American Association of Dental Schools. Students are required to take all courses listed for each semester of each year in the Curriculum Plan on pages 22-23. They must complete each course satisfactorily in order to enroll for the courses in the succeeding year.

At the present time, only the degrees of Doctor of Dental Surgery and B.S. in Dental Hygiene are offered by the School of Dentistry. However, it is possible to earn advanced degrees granted by West Virginia University in certain basic sciences which are closely related to dentistry. A program leading to the Master of Science degree is available in the field of microanatomy and organology. Programs leading to the Master of Science and the Doctor of Philosophy degrees are available in biochemistry, gross and neurological anatomy, microbiology, pharmacology, and physiology. Detailed information concerning admission requirements, courses of study, etc., in the various graduate programs may be obtained from the office of the Dean.

While graduate programs leading to advanced degrees in the dental sciences remain in the planning stage, the School of Dentistry is active in continuing education on a non-degree basis. Dental internships and residencies are available, and many postgraduate refresher courses are offered throughout the year.

PROMOTION

The grading system and the calculation of grade points have been described on pages 11-12. At the close of the school year, the status of each student is reviewed by a scholarship committee, which then reports to the Dean and the Faculty Council. The Committee may recommend that a student be promoted unconditionally, that he be promoted on probation, that he be allowed to make up deficiencies in an accredited summer school, that he be given the opportunity to repeat a year, or that he be suspended from further studies in the School of Dentistry. Final disposition in each case is the prerogative of the Dean and the Faculty Council.

Unconditional promotion normally depends upon the fulfillment of all course requirements, and the attainment of certain minimum standards of academic achievement. These requirements provide for a minimum grade-point average of 1.5 for promotion to the sophomore year; for a cumulative grade-point average of 1.75 for promotion to the junior year; for a cumulative grade-point average of 2.0 for promotion to the senior year; and for a cumulative grade-point average of 2.0 for graduation.

REQUIREMENTS FOR THE DEGREE

A candidate for graduation may be recommended by the faculty of the School of Dentistry to the Board of Governors for its approval and for the conferring of the degree of Doctor of Dental Surgery, provided he meets fully the following conditions:

1. He shall have been in regular attendance in the School of Dentistry for the full four years, or, upon transfer, for the last two years of the course.
2. He shall have completed the prescribed requirements for each of the four years.
3. He shall have shown during his time in the School of Dentistry that he is of good moral character and shall have demonstrated a sense of professional responsibility in the performance of his assignments as a student.
4. He shall have met in full all financial obligations to the University.
5. He shall present himself at the time and place designated for the conferring of the degree.

BACHELOR OF ARTS IN PRE-DENTISTRY

The College of Arts and Sciences of West Virginia University offers a Bachelor of Arts degree in Pre-Dentistry to qualified students who successfully complete a special predental curriculum and one full year of instruction in an accredited school of dentistry. Complete details of the program will be found in the *Announcements* of the College of Arts and Sciences.

CURRICULUM PLAN

		Clock Hours							
		1st Semester		*2nd Semester*		*Year Totals*			*Credit*
FRESHMAN YEAR		*Lect.*	*Lab.*	*Lect.*	*Lab.*	*Lect.*	*Lab.*	*Clinic*	*Hr.*
209	Microanatomy			48	144	48	144		6
210	Dental Anatomy	16	96			16	96		3
212	Dental Materials	16	96			16	96		3
206	Gross Anatomy	32	96	32	96	64	192		8
208	Neuroanatomy			16	64	16	64		2
223	Biochemistry	64	112			64	112		7
213	Prosthodontics			16	96	16	96		3
211	Comp. Dental Anatomy			16	16	16	16		1
	TOTALS	128	400	128	416	256	816		33
SOPHOMORE YEAR									
225	Microbiology	32	128			32	128		5
243	Physiology	64	80			64	80		6
229	Operative Dentistry	16	96	8	48	24	144		5
234	Prosthodontics	16	48	16	96	32	144		5
236	Crown & Bridge Dent.	16	96	16	96	32	192		6
228	Pathology			32	96	32	96		4
233	Pedodontics*			8	48	8	48		1
240	Periodontics*			8	24	8	24		1
242	Endodontics*			8	24	8	24		1
239	Anesthesiology			16		16			1
245	Orthodontics			16		16			1
226	Oral & Written Communication			32		32			2
	TOTALS	144	448	160	432	304	880		38
JUNIOR YEAR									
253	Oral Pathology	32	48			32	48		3
260	Pharmacology	64	48			64	48		5
255	Endodontics	8		8		16		30	2
264	Oral Diagnosis	16		16		32		28	2
258	Operative Dentistry	16		16		32		150	4
267	Oral Roentgenology	16	16			16	16	28	2
259	Oral Surgery	16		16		32		56	3
261	Pedodontics	16				16		40	2
263	Periodontics	8		8		16		30	2
268	Principles of Medicine			32		32			2
250	Prosthodontics	16	32			16	32	85	3
257	Crown & Bridge Dentistry	16				16		75	2
265	Orthodontics				48		48	20	1
270	Ceramic Technics			16	48	16	48		2
	TOTALS	224	144	112	96	336	240	542**	35

		Clock Hours							
		1st Semester		2nd Semester		Year Totals			Credit
		Lect.	Lab.	Lect.	Lab.	Lect.	Lab.	Clinic	Hr.
SENIOR YEAR									
279	Physical Diagnosis	16				16			1
294	Practice Administration	16				16			1
280	Endodontics							50	1
283	Operative Dentistry	16				16		250	5
287	Oral Diagnosis							42	1
284	Oral Surgery	16		16		32		84	4
285	Orthodontics	16				16		40	2
286	Pedodontics							80	2
276	Prosthodontics	16				16		150	4
277	Periodontics	16				16		50	2
289	Crown & Bridge Dentistry	16				16		150	4
295	Jurisprudence			16		16			1
296	Oral Roentgenology							42	1
290	Ethics			16		16			1
291	History of Dentistry			16		16			1
288	Principles of Medicine			16		16			1
297	Public Health Dentistry			16		16			1
299	Research in Dentistry								3
	TOTALS	128		96		224		938**	36

*Class meets for eight weeks.
**Allocation of clinic time is estimated on a yearly basis.

COURSES OF INSTRUCTION

Each course given by the School of Dentistry is designated by the name of the department teaching it, its number and title, the semester in which it is offered, and its hours of credit. Courses numbered 200–224 are for freshmen; 225–249 are for sophomores; 250–274 are for juniors; and 275–299 are for seniors.

For a description of those Basic Science courses which are a part of the dental curriculum, see pages 388-392.

CROWN AND BRIDGE DENTISTRY

Professor ADAMS; Assistant Professor MAZUR; Instructor T. J. MARTIN.

236. CROWN AND BRIDGE TECHNICS. Yr. 6 hr. Lectures and laboratory exercises on the principles and technics of crown and bridge prosthodontics.

257. CLINICAL CROWN AND BRIDGE DENTISTRY. Yr. 2 hr. Procedures employed in clinical practice, including the study of types of dental bridges, their indications, and their contra-indications.

270. CERAMIC TECHNICS. II. 2 hr. Lectures and laboratory exercises in the application of dental porcelain and acrylic resins in crown and bridge prostheses.

289. CLINICAL CROWN AND BRIDGE DENTISTRY. Yr. 4 hr. Clinical practice of crown and bridge prosthodontics, with emphasis on problems related to diagnosis and construction of the more complex dental bridges.

DENTAL ANATOMY

Associate Professor H. H. Boyers; Assistant Professor Bennett.

210. Dental Anatomy. I. 3 hr. Lectures and laboratory projects in the form and function of the human dentition throughout life; the relation of the teeth to one another and to surrounding structures.

211. Comparative Dental Anatomy. II. 1 hr. The evolutionary development of the human dentition based on a comparative study of the teeth and jaws of the vertebrates.

DENTAL MATERIALS

Associate Professor Overberger; Instructor Ludwig.

212. Dental Materials. I. 3 hr. A study of the composition, the physical, chemical, mechanical, and manipulative properties, and the technical uses of dental restorative materials as related to the practice of dentistry.

ENDODONTICS

Professor Biddington; Instructor Stevens.

242. Endodontic Technics. II. 1 hr. Lectures and laboratory exercises to prepare the student to treat the various problems related to the dental pulp and the periapical tissues.

255. Clinical Endodontics. Yr. 2 hr. Lectures on the etiology, diagnosis, treatment planning, treatment, and prognosis of the diseases of the dental pulp and their sequelae. Application of basic endodontic principles and preclinical sciences is stressed in performing clinical therapy.

280. Clinical Endodontics. Yr. 1 hr. A clinical course in the diagnosis and treatment of the more advanced endodontic problems.

MEDICINE

Professor Flink and Staff.

268. Principles of Medicine. II. 2 hr. A study of those diseases that are included in the practice of internal medicine about which the dentist should have sufficient knowledge for intelligent cooperation with the physician in rendering an effective total service to the patient.

279. Physical Diagnosis. I. 1 hr. To acquaint the student with procedures to be followed in making a thorough diagnosis; to instruct him in symptomatology of the more common general diseases, particularly those that may be dentally connected; and to instruct him in outlining an indicated treatment.

288. Principles of Medicine. II. 1 hr. A further study of general diseases about which the dental student should have intelligent working knowledge. Patients with diseases particularly important to dentists are demonstrated to the class, and discussion of the pathological physiology, treatment, etc., is presented.

OPERATIVE DENTISTRY

Professors Sausen and Randolph; Associate Professor H. H. Boyers; Assistant Professor Chastain; Instructors Ludwig and Wilson.

229. Operative Technics. Yr. 5 hr. A preclinical course in the nomenclature of operative dentistry, principles of cavity preparation, manipulation of restorative materials, and related instrumentation.

258. Clinical Operative Dentistry. Yr. 4 hr. A study of the diseases and abnormalities of the hard tissues of the teeth, the technical procedures followed and the materials used in the treatment of these conditions, and biological reactions of the tissues. Introduction to clinical practice, with emphasis on treatment planning.

283. Clinical Operative Dentistry. Yr. 5 hr. A further development of operative procedures taught in Operative Dentistry 229 and 258, extended to include emphasis on complex cases and with attention to the improvement of efficiency and finesse in operating.

ORAL DIAGNOSIS

Professor Graham; Associate Professor Kelln; Assistant Professors Alberico and Brown.

264. Oral Diagnosis. Yr. 2 hr. Lectures and clinical demonstrations designed to teach the methodical recognition of oral problems. The fundamental principles and procedures of oral diagnosis are stressed in the lectures, while their practical application is emphasized in the clinic.

287. Clinical Oral Diagnosis. Yr. 1 hr. Further clinical application of principles presented in Oral Diag. 264, extended to include special problem presentations which provide opportunities for independent observation and analysis.

ORAL ROENTGENOLOGY

Professor Graham; Assistant Professors Alberico and Brown.

267. Oral Roentgenology. Yr. 2 hr. The theory and practice of the use of roentgen rays as an aid to oral diagnosis.

296. Clinical Oral Roentgenology. I. 1 hr. Further clinical experience in oral roentgenology through the periodic assignment of students in the department.

ORAL SURGERY

Professor Campbell; Associate Professor Welch; Instructor Comley; Special Lecturer Davidson.

239. Anesthesiology. II. 1 hr. Introduction to general anesthesia; lectures on local anesthesia, including types, modes of action, indications, and contraindications for use. Premedication, anesthetic solutions, toxic effects, and technics of adminstration are discussed.

259. Oral Surgery. Yr. 3 hr. Didactic instruction and clinical experience in surgical principles and the extraction of teeth. The course includes classification and technics for the surgical removal of impactions.

284. Clinical Oral Surgery. Yr. 4 hr. Didactic instruction in the diagnosis and the surgical and adjunctive treatment of the diseases, injuries, and defects of the human jaws and associated structures. Practical training is obtained by daily and weekly assignments within the Oral Surgery clinic and by part-time assignments in the University Hospital.

ORTHODONTICS

Professor Sassouni; Instructors H. Martin and Nanda.

245. Principles of Orthodontics. II. 1 hr. Lectures on dental occlusion and its ramifications, including the etiology and classifications of malocclusions.

265. Orthodontic Technics. II. 1 hr. Technical instruction in taking records and in the construction of orthodontic appliances.

285. Clinical Orthodontics. I. 2 hr. Treatment planning, case presentation, clinical practice, and seminars concerning treatment of simple malocclusions, adjunctive treatment, and problems of retrusion.

PEDODONTICS

Professor Poleway; Assistant Professor Bennett.

233. Pedodontic Technics. II. 1 hr. A study of the principles involved in the treatment of diseased or damaged teeth of children. Appliance technics useful in children's dentistry are included.

261. Clinical Pedodontics. Yr. 2 hr. Lectures and clinical practice in the diagnosis and treatment of diseased, damaged, or abnormal conditions of the primary dentition.

286. Clinical Pedodontics. Yr. 2 hr. Clinical instruction in child management, children's diseases affecting the dentition, interceptive and preventive orthodontics, and the application of restorative procedures essential in the treatment of the child.

PERIODONTICS

Professor Fraleigh; Instructor Dempsey.

240. Periodontic Technics. II. 1 hr. The histopathology of periodontal disease and its treatment, with emphasis on correct instrumentation as related to the histology and physiology of the tissues involved.

263. Clinical Periodontics. Yr. 2 hr. Clinical diagnosis, classification, and treatment of periodontal diseases with instruction in etiology, diagnosis, treatment planning, and prognosis.

277. Clinical Periodontics. Yr. 2 hr. Clinical application of the principles taught in preceding courses, emphasizing the relation of the preclinical or basic sciences to therapy in the clinical practice of periodontics.

PROSTHODONTICS

Professor Davis; Associate Professor Overberger; Associate Professor F. E. Boyers.

213. Complete Denture Technics. II. 3 hr. Principles and procedures followed in the construction of complete dentures.

234. Partial Denture Technics. Yr. 5 hr. Principles and procedures followed in the construction of removable partial dentures.

250. Clinical Prosthodontics. Yr. 4 hr. Lectures, demonstrations, and clinical practice in methods of full and partial denture prosthesis.

276. Clinical Prosthodontics. Yr. 4 hr. Instruction in diagnosis, treatment planning, and clinical practice in the art of full and partial denture construction.

SOCIAL RELATIONS

Professors Randolph and Morris; Assocate Professor F. E. Boyers; Assistant Professors Brown and Howard; Special Lecturer Guine.

226. Oral and Written Communication. II. 2 hr. Lectures on the preparation and uses of oral and written communication; the use of the dental library; oral presentation of discussions and reports.

290. Ethics. II. 1 hr. Fundamental principles of ethics and their application in dental practice. The ethical obligations of the dentist to his patient, the community, society, and his colleagues in all the health sciences.

291. History of Dentistry. II. 1 hr. Study of origin and development of dentistry.

294. Practice Administration. I. 1 hr. A course designed to prepare the student for the effective management of his total professional responsibilities, both in and outside his office.

295. Jurisprudence. II. 1 hr. Lectures designed to acquaint the dental student with the fundamental legal rights, obligations, and responsibilities of the dentist.

297. Public Health Dentistry. II. 1 hr. Emphasis on public health practices designed to reduce the occurrence or the extension of dental diseases; to identify the place dental public health occupies in the field of general public health; and to acquaint the student with methods and materials suitable for use in administering dental public health programs.

SPECIAL COURSES

Staff.

299. Research in Dentistry. II. 3 hr. Completion of a research project and preparation of a supporting thesis designed to: (1) give the student a better understanding of the methods and procedures used in research and a fuller appreciation of its value in dentistry; and (2) enhance the student's ability to discover, evaluate, arrange, and present his findings in a professional manner.

Division of Dental Hygiene

Miss Pauline F. Steele, *Director*
Miss Mary Anne Hastings, *Instructor*

GENERAL INFORMATION

The dental hygiene program is conducted under the administration of the School of Dentistry. The curriculum, a four-year degree program for students in dental hygiene, is an integration of liberal arts courses with specific dental hygiene subjects. This program affords the student with an excellent opportunity to obtain both a general education and a specialized profession. Upon the fulfillment of all prescribed requirements, and with the recommendation of the School of Dentistry, the candidate shall be awarded the degree of Bachelor of Science in Dental Hygiene.

ENTRANCE REQUIREMENTS

The general admission policies established by West Virginia University shall be followed. The applicant must be a graduate of an accredited high school or of a preparatory school which is acceptable for college entrance. One unit in both algebra and plane geometry will be necessary for admission. High school applicants should be in the upper one-third of their graduating class. Transfer students must have an academic record of a cumulative point-hour ratio of 2.0 or above.

Each high school student will be expected to take the American College Testing Program examination—preferably before being admitted. The Dental Hygiene Aptitude Test will be required of every applicant. A pamphlet, with detailed instructions and information, can be obtained by writing The Director of Dental Hygiene, West Virginia University, Medical Center, Morgantown, West Virginia, or The American Dental Hygienists' Association, 304 East 45th Street, New York 17, New York.

A personal interview with the Director of Dental Hygiene will be scheduled with each candidate for admission. The applicant's personal qualifications and scholastic record will be reviewed by the Dental Hygiene Admissions Committee before final disposition is made on the application.

ADMISSION PROCEDURES

The applicant should write directly to The Director of Dental Hygiene, West Virginia University, Medical Center, Morgantown, West Virginia, requesting the required official forms. Transfer students meeting the stipulated admission requirements are eligible for enrollment. High school applicants should file for admission as soon as possible after the beginning of their seventh semester. Applicants should have all official records on file by July 1 of the year admission is desired.

CURRICULUM

In the first year, the major portion of the subject content is in the liberal arts area, with only a few credit hours assigned to specific dental hygiene courses. In succeeding years, however, more time is devoted to the dental hygiene major and less time given to the liberal arts subjects. The basic curriculum has been constructed to conform to the accreditation requirements of the Council on Dental Education of the American Dental Association.

CURRICULUM PLAN

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biology 1	4	Biology 2	4
Humanities 1	4	Humanities 2	4
Dental Hygiene 1	2	Dental Hygiene 2	2
Electives (preferably non-scientific)	3	Electives (preferably non-scientific)	3
Physical Education	1	Physical Education	1
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chemistry 1	4	Chemistry 2	4
Public Speaking 11	3	Psychology 1	3
Oral Anatomy 110	3	Microbiology 26	3
Human Anatomy 101	3	Oral Histology 109	2
Physical Education	1	Personal and Community Health 2	2
Elective	3	Physical Education	1
		Elective	3
	17		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Physiology 101	3	Human Growth and Development 106	3
Human Growth and Development 105	3	Clinical Dental Hygiene 126	3
Dental Hygiene Technics 125	3	Oral Roentgenology 132	2
Pathology 128	3	Dental Materials 135	3
Nutrition 1	3	Pharmacology 60	3
Elective	3	Elective	3
	18		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Dental Health Education 150	2	Public Health 172	2
Clinical Dental Hygiene 155	5	Advanced Clinical Dental Hygiene 156	5
Dental Hygiene Seminar 160	2	Economics & Practice Administration 164	1
Ethics and Jurisprudence 163	2	Dental Hygiene Seminar 161	2
Dental Nursing Technics 170	1	Technical Expression and Dental Literature 166	2
Sociology 102	3	Oral Surgery & Anesthesiology 159	2
Elective	3	Elective	3
	18		17

COURSES OF INSTRUCTION

1. Dental Hygiene. I. 2 hr. Orientation. An introductory course in the historical development of the dental hygiene program.

2. Dental Hygiene. II. 2 hr. Orientation. A survey of the scope of service, literature, education, ethics, professional organization, and opportunities in the area of dental hygiene.

109. Oral Histology. II. 2 hr. A study of the histological structure of the teeth and tissues of the oral cavity and the morphological development of these structures.

110. Oral Anatomy. I. 3 hr. The study of the human teeth and other structures of the oral cavity; the relation of the teeth to one another and to surrounding tissues; reproduction of tooth forms by drawing and carving.

125. Dental Hygiene Technics. I. 3 hr. A study of the fundamental principles of dental hygiene through lectures and laboratory participation.

126. Clinical Dental Hygiene. II. 3 hr. Lectures and clinical application of dental hygiene principles and technics.

128. Pathology. I. 3 hr. A study of the nature of diseases affecting the body, with particular emphasis on those affecting the hard and soft tissues of the oral cavity.

132. Oral Roentgenology. II. 2 hr. Introduction to the basic principles and procedures in radiographic technics.

135. Dental Materials. II. 3 hr. A study of the sources, the methods of manufacture, the physical and chemical properties, and the manipulation of restorative materials used in dentistry.

150. Dental Health Education. I. 2 hr. Methods, materials, and resources used in the teaching of dental health education to various population groups.

155. Clinical Dental Hygiene. I. 5 hr. Weekly class period devoted to lectures, demonstrations, or reports supplementing clinical dental hygiene practice. Practical rotating clinical experience is obtained through assignments to the different departments in the School of Dentistry.

156. Advanced Clinical Dental Hygiene. II. 5 hr. Weekly group discussions of problems related to clinical aspects of dental hygiene. Further practical experience is obtained by assignments in the dental hygiene clinic and in the various departments in the School of Dentistry.

159. Oral Surgery and Anesthesiology. II. 2 hr. Lectures on the basic principles and procedures of oral surgery as related to the role of the dental hygienist Introduction to the fundamental concepts of both local and general anesthesia.

160. Dental Hygiene Seminar. I. 2 hr. Series of diversified lectures to broaden the student's knowledge in the different aspects of dentistry.

161. Dental Hygiene Seminar. II. 2 hr. A sequence of special lectures to increase the student's information on current trends and advances in dentistry.

163. Ethics and Jurisprudence. I. 2 hr. A course of study in the basic principles of professional responsibilities and organizational procedures. Statutes governing the dental hygienist will be reviewed.

164. Economics and Practice Administration. II. 1 hr. Principles of public relations and general office management.

166. Technical Expression and Dental Literature. II. 2 hr. Lectures on the preparation and uses of oral and written communication; introduction to methods of library research and a review of dental literature.

170. Dental Nursing Technics. I. 1 hr. A course with emphasis on emergency first aid and principles of nursing applicable to the dental office.

172. Public Health. II. 2 hr. A survey of the theory and practice of preventive dentistry and the basic philosophy of public health concepts.

The School of Medicine

GENERAL INFORMATION

WHEN TO APPLY FOR ADMISSION

Application for admission in September, 1965, should be made promptly upon completion of the 1963-64 school year (June, 1964). The latest date for filing an application for September, 1965, is December 1, 1964.

COLLEGE CREDITS REQUIRED

The applicant should present a broad general education including, whenever possible, a major in some field, not necessarily a natural science. The Committee on Admission and Advancement needs evidence of excellence of academic performance and steady progress toward a goal. An excess of credit hours or higher degrees does little to offset the disadvantage of low grades in securing admission to the School of Medicine. The practice of repeating courses to raise the grade is discouraged. Applicants who have been subject to suspension from this or other medical schools can be admitted only in very exceptional cases and at the discretion of the Committee on Admission and Advancement.

The requirements outlined below may be met in either of two ways: first and preferably, by pursuing a course of study leading toward a Bachelor's Degree with major and minor fields of the applicant's own choosing; or secondly, by following a more rigidly prescribed curriculum generally offered as a "Premedical" curriculum. In either case, the applicant must have completed satisfactorily the minimum requirements listed below:

English Composition and Rhetoric	1 year
Zoology or Biology (with laboratory)	1 year
Inorganic Chemistry (with laboratory)	1 year
Organic Chemistry (with laboratory)	1 year
Physics (with laboratory)	1 year
Social Studies	1 year

A total of 90 semester hours of work exclusive of military or air science and physical education is required.

MEDICAL COLLEGE ADMISSION TEST

The scores on the Medical College Admission Test are used by the Committee on Admissions in considering an applicant for admission. No final action will be taken on an application until this score is received. For this reason, it is highly desirable that students take the test in the spring prior to making application for admission. Information concerning the time and place the test is given can be obtained from your Premedical adviser or committee or by writing to the Medical College Admission Test, The Psychological Corporation, 304 East 45th Street, New York 17, New York.

PERSONAL INTERVIEW

Each applicant is interviewed by members of the Committee on Admission and Advancement before a final decision is made on any application. The applicant is notified of the time and place of the interview.

DEGREE

The degree of *Doctor of Medicine* (M.D.) is granted to those students who have completed the prescribed curriculum and who have been recommended for the degree by the faculty of the School of Medicine.

Research Fellowships

Vacation research fellowships are available in virtually every department of the School. Inquire of department chairmen.

CURRICULUM PLAN

		1st Semester		2nd Semester		Year Total		Credit
		Lect.	Lab.	Lect.	Lab.	Lect.	Lab.	Hours
FIRST YEAR								
Biochemistry	231	64	128			64	128	8
Microanatomy	205	64	128			64	128	6
Gross Anatomy	201	64	80	48	112	112	192	12
Neuroanatomy	203			48	48	48	48	5
Physiology	241			112	128	112	128	9
Totals		192	336	208	288	400	624	40
SECOND YEAR								
Medicine	221					32	64	4
Medicine	223					16	0	1
Microbiology	221	48	144			48	144	7
Pathology	251	96	160	64	96	160	256	17
Microbiology	222			16	32	16	32	2
Pharmacology	262			80	96	80	96	6
Health & Prev. Med.	222					32	0	2
Psychiatry	221					16	0	1
Conjoined Course	221					16	0	1
Totals		144	304	160	224	416	592	41

THIRD AND FOURTH YEARS

During the 24 months between the completion of the second year and the granting of the degree, each student will be in school a total of 21 months, with one 3-month vacation period at some time during this interval.

Thus can be provided the rotation of student groups through clerkships in the major hospital services, followed by integrated activities in the out-patient clinics. Appropriate lectures, seminars and conferences offer a graduated and progressive learning experience.

Each student will be expected to spend one 3-month period in an individually selected experience involving either laboratory or clinical investigation (or both). This quarter may be spent in any department at the West Virginia University Medical Center or, upon approval, at some other institution.

The following table illustrates the rotation of one class through the experiences of the clinical years:

TABLE SHOWING SCHEDULE FOR CLINICAL YEARS

Experiences	Sum.	Fall	Wint.	Spr.	Sum.	Fall	Wint.	Spr.
Medical Clerkship	A	B	C	D				
Pediatrics Clerkship	B	A	D	C				
Surgery and Obstetrics Block			A	A	B & D	B & D	C	C
O.P.D. and Psychiatry Block			B	B	A & C	A & C	D	D
Electives	C	D					A	B
Vacation	D	C					B	A

COURSES OF INSTRUCTION

MEDICINE

Professors FLINK, SLEETH, ANDREWS, and MARSHALL; Clinical Professor WHITTLESEY; Associate Professors ALBRINK and CHICK (Chairman, Division of Public Health and Preventive Medicine); Clinical Associate Professors LAWLESS and MAXWELL; Assistant Professors ANDERSON, EDMUNDOWICZ, J. JONES, QUINTERO, (Chairman, Division of Allergy), HARLEY, and WELTON (Chairman, Division of Dermatology); Clinical Assistant Professors FERNANDEZ, JOHNSON, and VAN LITH; Instructors MORGAN (Medical Director of Out-Patient Department), DAVIDSON, and STOUT; Clinical Instructors EMANI, ENGLISH, GLICK, KOPPEL, MUTCH, and PIATT; Lecturer VIGGIANO.

221. PHYSICAL DIAGNOSIS. Yr. (Second Year). 4 hr. Examination of normal subjects. Practical experience in history taking and physical examination of patients.

223. HISTORY OF MEDICINE. Yr. (Second Year). 1 hr. Brief history of development of the art and science of medicine.

231. CLINICAL CLERKSHIP IN MEDICINE. (Third Year). CR. Required of third-year medical students. The individual student is assigned responsibility for specific patients from the hospital or out-patient service of the respective department in which he is serving at the time. He is an integral part of the team providing diagnostic and treatment services needed by the patient, under direct supervision of members of the faculty of the department. The student elicits the patient's history, performs physical examinations, and performs or secures indicated laboratory and clinical studies. The student records his findings and presents case reports for discussion by members of the faculty during hospital rounds or out-patient clinics. The student attends such staff conferences, etc., as directed by the several departments. Clerkship in medicine occupies 12 weeks.

OBSTETRICS AND GYNECOLOGY

Professor FUGO; Research Professor VAN LIERE; Clinical Assistant Professors GRECO and THOMPSON; Instructors BUTCHER and GOPLERUD.

231. Junior Lectures in Obstetrics and Gynecology. (Third Year). CR. Lectures in obstetrics and gynecology required of third-year medical students.

241. Clinical Clerkship in Obstetrics and Gynecology. (Fourth Year). CR. Six weeks experience for specific patient care including history taking, physical examination, laboratory analysis and clinical studies. Faculty and housestaff supervision as well as departmental and interdepartmental conferences are important components of this clerkship.

PEDIATRICS

Professor Klingberg, Associate Professor B. Jones; Assistant Professor Lucas and Nottingham; Clinical Assistant Professor Phillips.

231. Clinical Clerkship in Pediatrics. (Third Year). CR. Required of third-year medical students. See description of clinical clerkship under Med. 231 (above). Clerkship in Pediatrics occupies 6 weeks.

PSYCHIATRY

Professor Vosburg; Associate Professor Goshen; Instructors Johnson and Plutzky; Clinical Instructor B. Smith.

221. Introductory Psychiatry. Yr. (Second Year). 1 hr. An introductory course of lecture and demonstration.

241. Clinical Clerkship in Psychiarty. (Fourth Year). CR. Required of fourth-vear medical students. See description of clinical clerkship under Med. 231 (above). Clerkship in Psychiatry occupies 6 weeks.

HEALTH AND PREVENTIVE MEDICINE

Associate Professor Chick (Chairman, Division of Public Health and Preventive Medicine); Lecturer Viggiano.

222. Health and Preventive Medicine. Yr. (Second Year). 2 hr. PR: Consent. Introduction to principles of public health.

RADIOLOGY

Professor Amory; Associate Professor Green; Clinical Associate Professors Shaffer, C. Smith and J. D. H. Wilson; Clinical Assistant Professor Harron.

SURGERY

Professors Zimmermann, Bloor (Chairman, Division of Neurological Surgery), Warden, Gerwig, and Milam (Chairman, Division of Urology); Clinical Professor Pickett (Chairman, Division of Orthopedic Surgery); Associate Professors Craythorne (Chairman, Division of Anesthesiology), Trotter (Chairman, Division of Opthalmology), and Watne; Clinical Associate Professor Young; Assistant Professors Currie, Gutierrez-Pelaez, Moran, Nugent, and Yeakel; Clinical Assistant Professors Cather, Hall, Heiskell, Humphries, Miller, Pride, and Wiley; Instructors Huffington, Lee, Mantini, and Mengoli; Clinical Instructors Easley, Linger, Thrush, Walker, J. E. Wilson, Jr., and R. Wilson.

231. Clinical Clerkship in Surgery. (Third Year). CR. Required of third- or fourth-year medical students. See description of Clinical Clerkship under Med. 231. Clerkship in Surgery occupies 12 weeks.

CONJOINED COURSES

(Throughout the curriculum in medicine certain courses are conducted on non-departmental or inter-departmental lines. These have been designed as Conjoined Courses, and are described in the following section.)

241. Out-Patient Clinic. (Fourth Year). CR. Contact with and responsibility for patients visiting the outpatient clinics in Medicine, Obstetrics-Gynecology, Psychiatry, and Surgical Specialties.

Division of Medical Technology

Rex B. Conn, Jr., *Director*
Betholene F. Love, *Associate Director*

Advisory Committee to Division of Medical Technology:

R. B. Conn, Jr., *Chairman;* R. G. Burrell, J. E. Jones, F. J. Lotspeich, B. F. Love, D. W. Northup, and L. E. Herod.

Associate Professors Conn and Love; Instructors Fryer, Moore, Petracca, Sharpe, and Taylor; Teaching Assistant Henderson.

GENERAL INFORMATION

The program in Medical Technology at West Virginia University consists of two years of premedical technology and two years of medical technology. The Bachelor of Science Degree is awarded by the School of Medicine after satisfactory completion of the requirements outlined in this Bulletin.

The first two years of premedical technology may be taken in any institution of recognized standing which offers the courses required for admission into the medical technology curriculum. The College of Arts and Sciences of West Virginia University offers a premedical technology curriculum that meets these requirements.

The third year is a continuation of general education and the fourth year is 12 months of practical education in the University Hospital Laboratories. During these last two years, the student is registered in the School of Medicine under the supervision of the Directors of the Division of Medical Technology.

Before the student is accepted into the fourth year (the clinical phase of medical technology) an approved transcript evaluation must be on file in the office of the Division of Medical Technology.

GOALS

The goal of the Division is to provide a strong integrated program in medical technology which leads to a bachelor of science degree and which provides an educational background acceptable for graduate work in the medical sciences. The purposes are: (1) to provide a program in medical technology which meets the academic standards of the University, (2) to provide graduate medical technologists for clinical, public health, and research laboratories, and (3) to provide an educational background which enables graduates to accept teaching and supervisory positions in medical technology.

ACCREDITATION

The program in medical technology at West Virginia University is approved by the Council on Medical Education of the American Medical Association. Graduates are eligible for certification by the Board of Registry of the American Society of Clinical Pathologists.

ADMISSION REQUIREMENTS

(A). Admission requirements for the first year (premedical technology) are those for the College of Arts and Sciences, namely, 15 units of high school work including subjects specified in the *Announcements* of the College of Arts and Sciences. One unit of algebra and one unit of plane geometry are required; chemistry and physics are very desirable.

(B). Admission to the third year (Medical Technology I) is based upon two years of college work with a total of 64 hours, exclusive of military science or air science, as follows:

English. 12 hours. (Must include 6 hours composition and rhetoric and 6 additional hours in literature.)

Biological Science. 8 hours. (General Zoology or General Biology are acceptable.)

Chemistry. 15-16 hours. (Inorganic Chemistry, 8 hours; Quantitative Analysis, 3-4 hours; Organic Chemistry, 4 hours.)*

Physics. 8 hours.

Physical Education. 4 hours for women, 2 hours for men. (University requirements for students taking first two years in residence.)

Algebra. 3 hours. (For the class entering September 1964, Math. 3 will be required.)

Electives to complete the required hours. Electives should be in the fields not covered in the required subjects. Courses such as bacteriology, parasitology and anatomy should not be taken until after the completion of the sophomore year. A foreign language is recommended for students who plan to do graduate work.

*Transfer students are required to have a complete course in organic chemistry to include aliphatic and aromatic compounds.

UNIVERSITY CORE CURRICULUM REQUIREMENTS

All undergraduates entering the University for the first time in September, 1964, or later must complete the University Core Curriculum requirements in order to graduate. (See page 93).

ADMISSION PROCEDURE

Application for admission into the third year should be made prior to the beginning of the second semester of the sophomore year in college. Students at West Virginia University are not transferred automatically from the preprofessional course (first two years) to the professional course (third and fourth years). Students are selectively admitted to the Division of Medical Technology for their final two years of work.

Application forms for admission to the professional course are obtained from the office of the Assistant Registrar, Medical Center. These forms should be completed and returned to his office not later than February 1, if the student wishes to enter the succeeding fall class.

Admission to the third year is on the recommendation of the Advisory Committee to the Division of Medical Technology with the approval of the Dean. A personal interview with the Committee is required.

DEGREE

The Bachelor of Science Degree in Medical Technology is granted to those students who have completed the prescribed curriculum and who have been recommended for the degree by the faculty of the School of Medicine.

PREMEDICAL TECHNOLOGY CURRICULUM

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1, Inorganic	4	Chem. 2, Inorganic	4
English 1, Comp. & Rhetoric	3	English 2, Comp. & Rhetoric	3
Elective*	3	Math. 3	3
Biol. or Zool. 1, General	4	Biol. or Zool 2, General	4
Mil. or Air Sci. 1 (M)	2	Mil. or Air Sci. 2 (M)	2
Phys. Educ. (M and W)	1	Phys. Educ. (M and W)	1
Med. Tech. 1**	1	Med. Tech. 2**	1
	16-18		16-18

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 131, Organic	4	Chem. 115, Quantitative	3
English or American Lit.	3	English or American Lit.	3
Elective*	3	Elective*	3
Physics 1, Introductory	4	Physics 2, Introductory	4
Mil. or Air Sci. 3 (M)	2	Mil. or Air Sci. 4 (M)	2
Med. Tech. 3**	1	Phys. Educ. (W)	1
Phys. Educ. (W)	1	Med. Tech. 4**	1
		Elective	3
	16-17		18-20

*Electives: Students who plan to do graduate study are encouraged to take a foreign language as their elective.

**Medical Technology 1, 2, 3, and 4 are not required subjects, but it is highly recommended that all students take these courses.

MEDICAL TECHNOLOGY CURRICULUM

THIRD YEAR

(Medical Technology I)

The courses of this year give the student an introduction to the basic medical sciences.

During the first semester of this year students must take the University examination to test proficiency in English unless this requirement has been previously satisfied.

Courses required are as follows:

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Anat. 101	3	Parasitol. 224	3
Med. Tech. 100	3	Microbiol. 223	5
Biochem. 139	4	Biochem. 239	3
Physiol. 141	4	Med. Tech. 101	3
Elective	3	Elective	3
	17		17

TOTAL ..... 34 hr.

FOURTH YEAR

(Medical Technology II)

The fourth year consists of 12 full months of instruction in the University Hospital Laboratories and includes the courses listed below. Students begin a rotation schedule in the clinical laboratories in June of their senior year. This schedule continues until the following June. Due to the nature of the profession, students may be required to be "on duty" at irregular hours at the discretion of the Directors.

Women students must live in approved University housing and must follow the rules and regulations for all senior women.

Approximately two weeks' vacation, exclusive of national holidays, will be allowed during the twelve months. If the student is absent more than one week due to illness, the time lost must be made up at the end of the school year.

Courses for which the student registers are as follows:

SUMMER SESSION

	Hr.
Orientation 200	No credit
Metabolimetry and Electorcardiography 203	1

FALL AND WINTER SESSIONS

Clinical Microbiology 201	6
Immunohematology and Blood Banking 202	3
Clinical Chemistry 204	8
Laboratory Management and Records 205	1
Clinical Microscopy 206	2
Histological Technic 207	2
Clinical Hematology 208	8
Clinical Serology 209	2
Seminar 210, I	2
Seminar 210, II	2
Approximate Clock Hours for Senior year	2,000
Total Credit Hours for Senior year	37

COURSES OF INSTRUCTION

1. Orientation to Medical Technology. I. 1 hr. The principles and practices of medical technology, and the role of the medical technologist as a member of the health team.

2. Orientation to Medical Technology. II. 1 hr. Continuation of the work of the first semester.

3. Introduction to Medical Sciences. I. 1 hr. Lectures centered on case presentations of patients at the University Hospital. Serves to introduce the student to medical terms and illustrates the various aspects of patient care including the laboratory diagnostic procedures which the students will be doing during the third and fourth year.

4. Introduction to Medical Sciences. II. 1 hr. Continuation of the work of first semester.

100. Medical Technology. I. 3 hr. A study of the elements of histological structure with emphasis on the preparation of tissues for study and on the study of blood cells. Lecture 3 hr. per week; lab. 3 hr.

101. Clinical Laboratory Diagnostic Methods. II. 3 hr. A study of procedures used in the clinical laboratories. Lect. 2 hr. per week; lab. 4 hr.

200. Orientation. S. No credit. (For Senior Students). The principles and practices of medical technology in relation to the hospital and clinics.

201. Clinical Microbiology. I, II, and S. 6 hr. Eight weeks of instruction in bacteriology, mycology, and parasitology.

202. Immunohematology and Blood Banking. I, II, and S. 3 hr. Four-six weeks of instruction in blood banking. Laboratory procedures required for transfusions, preservation of blood and blood derivatives, and antibody studies.

203. Metabolimetry and Electrocardiography. S. 1 hr. Technic of basal metabolism; study of the electrocardiograph machine and its use.

204. Clinical Chemistry. I, II, and S. 8 hr. Eight weeks of instruction in the procedures used in the clinical chemistry laboratory and four weeks of advanced instruction in more specialized technics.

205. Laboratory Management and Records. II. 1 hr. A study of laboratory organization, economics, ethics, and records.

206. Clinical Microscopy. I, II, and S. 2 hr. Four weeks of instruction in urine analysis, gastric analysis, pregnancy tests, and other procedures.

207. Histological Technic. I, II, and S. 2 hr. Four weeks of instruction in the preparation of human tissues and organs for gross and microscopic examination.

208. Clinical Hematology. I, II, S. 8 hr. Ten weeks of instruction in laboratory methods used in study of hematologic disorders.

209. Clinical Serology. I, II, S. 2 hr. Four weeks of instruction in serology.

210. Seminar. I, II. 1-4 hr. Each student is required to present at least one seminar during each term on some phase of medical technology.

The School of Nursing

GENERAL INFORMATION

The School of Nursing is one of fifteen schools and colleges functioning within the administrative framework of West Virginia University. All resources of the University are available to the School, and the curriculum is planned to enable nursing students to enjoy the same privileges and responsibilities as other University students.

The School offers a basic collegiate program for high school graduates who wish to prepare for careers in professional nursing. The program consists of four academic years leading to the Bachelor of Science degree in nursing. Its graduates qualify for admission to state licensing examinations.

The curriculum, which has come to be known throughout the country as "The West Virginia Plan," stresses the unity of nursing. It is designed to provide learning experiences of increasing depth, moving from the simple to the complex in all phases of clinical nursing as the student progresses through the course of study. All upper-division courses in the nursing major are built upon prerequisites at the lower-division level. For example, the student studies maternity nursing as a sophomore, again as a junior, and again as a senior. The same is true in each clinical nursing subject. This plan enables the learner to return to each clinical field after adding to her knowledge in other fields of nursing and in general education courses.

PURPOSE AND PHILOSOPHY

The School of Nursing, by working toward the betterment of nursing care, accepts its responsibility for contributing to the attainment of the University's objectives and ideals of excellence in teaching, research, and public service.

The faculty believes that nursing shares with other health disciplines the broad responsibility for providing for health needs of people. These needs encompass promotion of health, prevention of illness, and restoration to health. Nursing is unique in that it is characterized by responsibility for personalized, continuous care of the individual in illness, in addition to its role in health teaching and health supervision of individuals, families, and community groups.

The nurse possesses background knowledge of related physiobiological, behavioral, and health sciences. She synthesizes this knowledge to obtain principles of nursing which she utilizes as she plans, implements, and evaluates nursing care. As a member of society she is responsible for contributing to the improvement of her own profession, and the improvement of her community, through creative efforts as well as through self-directive, responsible behavior.

Learning is an active process, one which is favored by a climate of personal acceptance of the learner. Learning is also a progressive and cumulative experience resulting in changed behavior which becomes useful in subsequent learning situations. Progressively complex tasks built upon this experience serve as motivation for continued learning.

The process of education should take place in an atmosphere characterized by a democratic spirit in which students and faculty can share learning experiences. Such a climate encourages development of intellectual curiosity and the capacity for self-direction, to the end that the individual may become an informed, participating citizen, conscious of his own rights and responsibilities and the rights and responsibilities of others.

The School prepares students for beginning practice of professional nursing, with an educational background designed to provide a basis for advanced study in nursing and for professional growth and advancement through experience. The School expects that the university student of today will be the leader of tomorrow.

ACCREDITATION

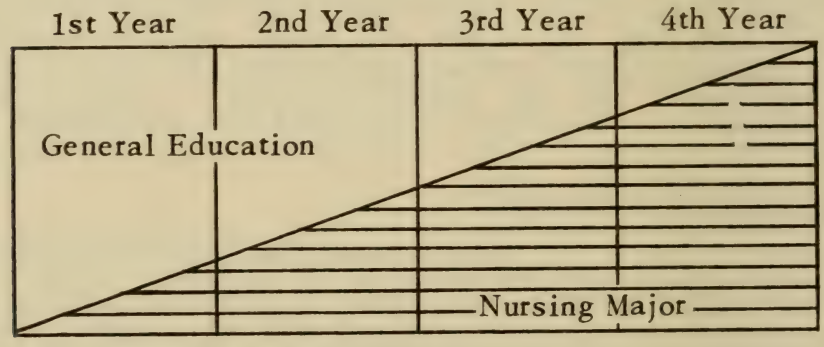
West Virginia University is accredited by North Central Association of Colleges and Secondary Schools and other accrediting agencies. The School of Nursing,

established in 1960, is approved by the West Virginia Board of Examiners for Registered Nurses and is fully accredited by the National League for Nursing.

CURRICULUM PLAN

The curriculum, leading to a baccalaureate degree with a major in nursing and a minor in social sciences, consists of four academic years of study offering general education and nursing courses simultaneously throughout. During the first and second years general education courses predominate; during the third and fourth years nursing courses increase and general education courses decrease. The following diagram, although greatly over-simplified, suggests schematically the general plan upon which the curriculum is developed:

Curriculum Design



The curriculum includes courses taught by other schools and departments of the University, as well as the nursing courses taught by faculty of the School of Nursing. Descriptions of non-nursing courses are given in the *Announcements* of the appropriate school, college, or department.

COURSES OF INSTRUCTION

Nsg.

1. Introduction to Nursing. I. 2 hr. Designed to help the beginning student develop an appreciation of the meaning of health and illness, of organization of health resources in society, and the contribution nursing makes toward meeting the health needs of people. Includes introductory nursing experiences.

2. Foundations of Nursing. II. 2 hr. PR: Nsg. 1. Study of basic nursing theory, practices and procedures. Extends introductory nursing experiences.

11. The Life Process. I. 3 hr. PR: Sophomore standing or consent. A course interrelating the physiological, psychological and environmental factors affecting human growth and development from birth through senescence.

70. The Nurse in Western Culture. II. 2 hr. PR: 6 hr. Humanities or World History. Philosophical treatment of the emergence of professional nursing within the historical framework of Western society.

80, 81. Introduction to Nursing of Adults. I, II. 3 hr. per sem. PR: Nsg. 2. An interdepartmental course dealing with concepts and principles basic to providing nursing care for adults. Theory and correlated clinical experience first semester emphasize measures which promote and maintain health. Second semester emphasis is on nursing care modifications necessitated by various adaptations in illness.

WEST VIRGINIA UNIVERSITY SCHOOL OF NURSING
CURRICULUM PLAN

First Year	Hr.	Second Year	Hr.	Third Year	Hr.	Fourth Year	Hr.
Eng. 1 & 2 Comp. & Rhet.	6	Anat. 101—Prin. Anat.	3	Philos. 4—Intro. to Phil.	3	Psych. 115—Ldrship & Hum. Rel.	3
Hum. 1 & 2 Gen. Course	8	Physio. 101—Prin. Phys.	3	*or* 104—Prin. of Phil.	(3)	H & PM 222—Hlth. Prev. Med.	2
Bio. 1 Gen. Biology	4	M. Bio. 26—Microbio.	3	Soc. 243—Anthropology	3	Philos. Elective	3
Chem. 1 & 2 Inorg. Chem.	8	Pcol. 60—Pharmacol.	3	Pol. Sci. 1—El. Dem. Gov't.	3	Soc. Elective	3
Psych. 1 Intro. to Psy.	3	Soc. 1—Intro. Soc.	3	*or* 2—Amer. Fed. Sys.	(3)	Elective	3
P.E. Gen. Program	2	Home Ec. 1—Elem. Nutr.	3	Elective	3		
Nsg. 1—Intro. to Nsg.	2	Nsg. 11—The Life Process	3	Nsg. 111—Basic Concepts of Disease	2	Nsg. 220—Nsg. of Adults	4
Nsg. 2—Found. of Nsg.	2	Nsg. 70—The Nurse in W. Culture	2	Nsg. 120—Nsg. of Adults	5	Nsg. 230—Nsg. of Children Seminar	2
		Nsg. 80, 81—Intro. to Nsg. of Adults	6	Nsg. 130—Nsg. of Children	2	Nsg. 240—Maternity Nsg. Seminar	2
		Nsg. 90, 91—Intro. to Mat.-Ch. Nsg.	6	Nsg. 140—Maternity Nsg.	2	Nsg. 250—Spec. Prob. in Psych. Nsg.	2
				Nsg. 150—Psych. Nsg.	4	Nsg. 260—Community Nsg.	2
				Nsg. 160—Community Nsg.	2	Nsg. 270—Professional Elective	2
				Nsg. 161—Geriatric Nsg.	2	Nsg. 271—Nsg. and the Social Order	2
				Nsg. 170—Intro. Research	2	Nsg. 201—Organiz. of Patient Care	2
Totals	35		35		33		32

90, 91. Introduction to Maternal-Child Nursing. I, II. 3 hr. per sem. PR: Nsg. 2. An interdepartmental course dealing with concepts and principles basic to providing nursing care during the maternity cycle and throughout childhood. Theory and correlated clinical experience first semester emphasize measures for maintaining health. Second semester emphasis is on prevention of illness and simple measures for health restoration.

111. Basic Concepts of Disease. I. 2 hr. PR: Nsg. 11, Anat. 101, Phys. 101. Series of lectures dealing with complex pathophysiological phenomena in disease. Presented by specialists in medicine and basic sciences.

120. Nursing of the Physically Ill Adult. I, II. 5 hr. PR: Junior standing. Study of major adult health problems arising from pathophysiologic adaptations to illness. Emphasizes nursing care necessitated by specific adaptive responses and therapeutic management.

130. Nursing of Children. I, II. 2 hr. PR: Junior standing. Theory and clinical experience related to the nursing care of the hospitalized infant and child and adaptations of children to illness. Emphasis is on basic principles of nursing care of children with health problems.

140. Maternity Nursing. I, II. 2 hr. PR: Junior standing. Concepts, principles and practices of maternity nursing basic to support of the mother during labor and delivery and immediate care of the newborn. Emphasis is on the family as a unit and on the reproductive process as it affects personal and family life.

150. Psychiatric Nursing. I, II. 4 hr. PR: Junior standing. Theory and clinical experience dealing with dynamics of human behavior as these relate to prevention, diagnosis, and treatment of mental illness. Emphasis is on development of increased skill and understanding in observation of behavior, on communications, and interpersonal relationships.

160. Community Nursing. I, II. 2 hr. PR: Junior standing. Consideration of major community health problems with special reference to their prevention and control. Emphasis is on the nursing care of families with health problems and on means by which communities organize to effect better health. Instruction, experience and observation in community health facilities.

161. Geriatric Nursing. I, II. 2 hr. PR: Junior standing. Theory and clinical experience in nursing the aged patient, with special reference to the psychological and social adaptations necessitated by illness in this age group.

170. Introduction to Research in Nursing. II. 2 hr. PR: 3 hr. Philosophy, junior standing or consent. Introduction to research in nursing with special reference to its utilization in the improvement of patient care. Considers the theory of nursing and the use of scientific criteria in evaluation of current nursing research.

201. Organization of Patient Care. II. 2 hr. PR: Psych. 115. Relates principles of administration and supervision to organization of nursing care. Introduces management skills needed in beginning nursing positions. Emphasizes responsibility of the nurse in planning, coordinating and directing nursing activities.

220. Nursing of the Physically Ill Adult. I, II. 4 hr. PR: Senior standing. Continued study of major adult health problems arising from pathophysiological adaptation to illness. Emphasizes the planning, ministering and evaluating of comprehensive nursing care.

230. Nursing of Children Seminar. I, II. 2 hr. PR: Senior standing. Discussion and clinical experience concerned with the continuous nursing care required for the ill and handicapped child and supportive needs of his family. Consideration is given to coordination of health care for children with major health problems.

240. Maternity Nursing Seminar. I, II. 2 hr. PR: Senior standing. Broadening and deepening of concepts, principles and practices of maternity nursing. Emphasis is on special problems and on nursing appraisal of patients' needs.

250. Special Problems in Psychiatric Nursing. I, II. 2 hr. PR: Senior standing. Theoretical and experimental approaches to the investigation of nursing roles and mental health problems.

260. Community Nursing. I, II. 2 hr. PR: Senior standing. Instruction and experience in public health nursing with special reference to trends in public health and the role of the nurse within the administrative framework of a community health department.

270. Professional Elective. II. 2 hr. PR: Completion of senior level in clinical area if clinical area is involved, Nsg. 170, consent. Individualized plan to assist student in selecting and planning toward her professional goals. Consists of directed study and reading, individual conferences, field observation and experience, project, and other appropriate activities.

271. Nursing and the Social Order. I, II. 2 hr. Examination of the dynamics of American society with special reference to the implications for nurses, nursing, and health care.

ADMISSIONS

Application should be made in the fall of the senior year in high school and should include a transcript of high school work, to date. Necessary application forms and instructions may be obtained from the high school principal or from the Assistant Registrar, Medical Center, West Virginia University, Morgantown.

The School of Nursing requires completion of at least two units of mathematics in high school, in addition to other requirements set for admission to the University. While the School does not specify particular courses in high school, it recommends that students expecting to apply to the School of Nursing select high school courses in sciences, languages, and social sciences, as well as in mathematics and English.

A candidate for nursing should have good physical and mental health as well as those personal qualifications appropriate to a professional person. The School of Nursing admits students who by reason of personal and intellectual qualities show promise of benefiting from the program and of contributing to the field of nursing. Applicants who, in the judgment of the Admissions Committee, present the highest overall qualifications are selected for admission. All candidates are required to have personal interviews with members of the faculty prior to acceptance. Factors influencing decision of the Admissions Committee are: scholastic record, achievement on standardized tests, motivation for academic nursing, health, personal qualities, and social adjustment.

All students entering the University are required to take the American College Testing examination (ACT). These tests are offered at various locations throughout the State. Principals of West Virginia high schools have application materials and schedules for these tests. Nonresident applicants should write directly to American College Testing Program, Iowa City, Iowa, for the necessary information. The School of Nursing uses results of these tests as one means of selecting candidates. It is therefore important that each applicant take the test as early as possible in the senior year.

ACADEMIC STANDARDS

In order to qualify for unconditional promotion a student must: (a) maintain a cumulative grade-point average of 2.0 or better (C), with a minimum of 2.0 in nursing courses; (b) pass all required courses and, (c) maintain physical and emotional health suitable for continuance in nursing. A freshman student may be promoted on a cumulative grade-point average of 1.7 if second semester grades show substantial improvement over those of first semester; this decision is at the

discretion of the Admissions, Scholarships and Promotions Committee. A grade of D in an upper-division clinical nursing course is not acceptable toward fulfillment of graduation requirements but it may be removed by repeating the course, on recommendation of the adviser and with the consent of the instructor.

Conditional promotion may be granted if a student fails to meet the requirement in no more than one of the three areas (a, b, and c) as outlined above, and if she presents an acceptable plan for fulfilling this requirement within a time limit acceptable to the Admissions, Scholarships and Promotions Committee. The condition must be removed within the following semester, or within the time prescribed by the Committee.

GRADUATION REQUIREMENTS

Each baccalaureate degree conferred by West Virginia University is conditioned upon completion of a specified number of semester hours of credit. Curriculum requirements in the School of Nursing total 133 credit hours, exclusive of physical education. The School of Nursing requires a cumulative grade-point average of 2.0 (C) in all work, and an average of 2.0 in nursing subjects.

All students entering college for the first time in September, 1964, or later must complete requirements of the University Core Curriculum in order to graduate. These requirements include two semesters' work in English Composition, exclusive of English 0; and remedial work in mathematics if the student upon entering the University lacks proficiency equivalent to that normally attained in two years of high school mathematics. Each candidate for a degree must complete a minimum of 12 credit hours in approved courses in each of three areas, including at least two subjects within each grouping. These areas are: (a) art, music, foreign languages and literature, English literature, philosophy; (b) economics, history, psychology, political science, sociology; (c) biology, chemistry, geology, mathematics, physics.

The curriculum of the School of Nursing is so designed that any student fulfilling requirements for graduation from the School will, at the same time, be meeting requirements as stated above for graduation from the University.

TRANSFER STUDENTS

A student enrolled in another college within the University or in any other accredited college is eligible for admission with credit if she presents a grade-point average of 2.0 or better, based on all work attempted at previous institutions. Course work must be comparable to first year requirements in this curriculum, as evaluated by the Registrar and the Admissions Committee.

In addition to meeting all other criteria for admission of regular students, a candidate for transfer must be able to attend summer school to complete freshman nursing courses prior to continuing in September as a sophomore. In all cases acceptance is contingent upon the number of vacancies in the sophomore class. Because of the design of this curriculum, transfer students must complete a minimum of three years in this School regardless of previous college credit.

Application for transfer must be completed by May 1 in order to allow time for evaluation of credentials and planning of summer school course offerings.

REGISTERED NURSE STUDENTS

The School of Nursing offers qualified registered nurses who have been graduated from diploma schools of nursing opportunity to complete requirements for the Bachelor of Science degree in Nursing. Criteria for admission differ somewhat from those required of regular basic students because of the different backgrounds. Registered nurses are admitted as Special students until completion of certain prescribed requirements, at which time they are admitted to the basic program as regular students.

Any person applying for admission to West Virginia University School of Nursing as a Special student, within two years following graduation from an approved diploma school of nursing, is required to present the following credentials at least six weeks prior to initial date of enrollment: (a) minimum age 21 years;

(b) high school transcript with 15 units of high school work acceptable to the University, showing an average of C or rank in upper one-half of high school class; (c) transcript of nursing school work, showing state board scores if available; (d) transcript of any previous college work; (e) medical and dental records.

Any person graduated from a diploma school of nursing more than two years prior to applying shall also submit evidence of licensure in a state or territory of the United States, a record of nursing work experience, and three recommendations.

If credentials are acceptable to the Admissions, Scholarships and Promotions Committee, the registered nurse is admitted to the School of Nursing as a Special student and allowed to enroll, either full-time or part-time, in general education courses, pending completion of approximately 60 semester hours with a minimum grade-point average of 2.0 (C). No credit for diploma school program is granted, as such. However, in accordance with University policy, the registered nurse may establish credit by advanced standing examination in subjects for which she qualifies.

Upon fulfillment of the above requirement the registered nurse student becomes eligible to apply for credit by advanced standing examination, in clinical nursing courses numbered 1 through 199. Credit by examination may be established in no more than six credit hours in clinical nursing courses at the 200-level. All advanced standing examinations in nursing courses are administered by nursing faculty and are comparable to those required of regular students in the program. Non-clinical nursing courses must be taken for credit by all degree candidates.

The registered nurse may pursue the program on a part-time basis until she becomes eligible for admission as a regular student, at which time she must enroll on a full-time basis and present an acceptable plan for completion of degree requirements. The registered nurse student enrolled on a full-time basis should plan on approximately three years, overall, for completion of the degree. While enrolled full-time a student cannot also carry full-time employment.

In order to retain Special-student status the student is required to enroll regularly each semester and to achieve a cumulative grade-point average of 2.0 or better by the time she completes 30 credit hours. Failure to enroll, unless with consent of adviser, automatically constitutes withdrawal from the program. Consideration for re-admission can be gained only on written request to the Admissions Committee.

General education courses which meet requirements of the School of Nursing may be taken in any accredited college or university and can be counted toward fulfillment of degree requirements. All nursing course work must be taken at West Virginia University.

In accordance with University regulations, registered nurse students are held to the same requirements affecting degrees as are other University students. These regulations provide that candidates are eligible for graduation upon completion of requirements in effect at the time of their first registration in the School, provided they apply for graduation within seven years of that date. A student failing to complete requirements by the expiration date may then be held to any new requirements in effect in the School. University residence requirements may be met either by completion of a total of 90 hours in the University or by completing the last 30 hours of work in actual residence at the University.

Registered nurse students are required to provide public health uniforms for public health experience and must also provide their own transportation for this experience. Application to the School of Nursing should be addressed to the Assistant Registrar, Medical Center, West Virginia University, Morgantown.

The School of Pharmacy

GENERAL INFORMATION

The curriculum in Pharmacy at West Virginia University consists of two years of pre-pharmacy requirements followed by three years of professional study.

AIMS AND PURPOSES

The principal objective of the School of Pharmacy is to educate men and women who intend to undertake the practice of pharmacy.

The curriculum is designed to equip the student with the scientific and technical knowledge required for pharmaceutical practice and to inculcate in the student a concept of the pharmacist's professional responsibilities as a guardian of the public health.

OPPORTUNITIES IN PHARMACY

A majority of pharmacy graduates enter practice in community pharmacies. However, a number of positions are available in institutional pharmacies and in various governmental agencies. Pharmacists are eligible for commissions in the Armed Forces and the U. S. Public Health Service.

Graduates may prepare themselves for careers in teaching and research by entering graduate schools for specialization in pharmacy, pharmacognosy, pharmaceutical chemistry, pharmacy administration, and pharmacology. The pharmaceutical industry provides opportunities in a variety of capacities in promotion, distribution, production, and research.

ACCREDITATION

The School of Pharmacy of West Virginia University is accredited by the American Council on Pharmaceutical Education. The Council is composed of members from the American Pharmaceutical Association, the National Association of Boards of Pharmacy, the American Association of Colleges of Pharmacy, and the American Council on Education.

LEGAL REQUIREMENTS

To qualify for examination for registration by the State Board of Pharmacy, the applicant must be a citizen, not less than 21 years of age, and of good moral character. Further, the applicant must be a graduate of an accredited school of pharmacy, and must serve an internship for one year.

West Virginia law provides that the year of internship be registered with the West Virginia State Board of Pharmacy within ninety days from the beginning of such work for it to be credited toward the required year of experience. Persons must be enrolled in or a graduate of a recognized school of pharmacy to gain experience acceptable for this requirement.

RECIPROCITY

Graduates of the School of Pharmacy are eligible for examination to practice pharmacy in any state. Graduates who successfully pass the West Virginia State Board of Pharmacy examination are privileged to reciprocate, without further examination, with forty-six other states and with the District of Columbia and Puerto Rico, provided they meet the requirements of these states.

STUDENT STATUS AND ADVANCEMENT

The determination of student status is in the hands of the Committee on Student Status and Advancement. All actions of the Committee are subject to approval of the Dean. The grading system and the calculation of grade-point averages are described elsewhere in this bulletin. In the School of Pharmacy all grades, except W and WP grades, are used to determine the cumulative grade-point average. The advancement of students in the School of Pharmacy is based on satisfactory academic performance as well as the completion of course requirements. To be in good standing, a student must maintain at least a 2.00 average.

If in any semester while enrolled in the School a student fails to attain a 2.00 average, his status is subject to review by the Committee. Any student receiving a 1.5 average or less during a period of registration shall be subject to suspension. Any student who fails in one-half or more of the credit hours in which he is enrolled in a period of registration is automatically suspended. A student under suspension may petition the Committee on Student Status and Advancement for reconsideration. Except for unusual circumstances, a student may be reinstated only once.

Students on probation in the School of Pharmacy are not eligible to hold office in student organizations, or to participate in activities which make demands on time necessary to maintain satisfactory academic performance.

DEGREE REQUIREMENTS, CURRICULUM, COURSES

REQUIREMENTS FOR THE DEGREE

The degree of Bachelor of Science in Pharmacy (B.S.Pharm.) is conferred upon any student who complies with the general regulations of the University concerning degrees, satisfies all entrance and School requirements, and completes the curriculum of the School of Pharmacy.

To be eligible for graduation, a student must have an average of "C" or an average of two grade points for all work in the professional curriculum, as well as all work presented for graduation.

Each candidate for graduation from the School of Pharmacy shall be required to make at least one visit to the manufacturing and research facilities of a major pharmaceutical firm.

PROFESSIONAL CURRICULUM

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Anatomy 101	4	Microbiology 220	5
Biochemistry 139	4	General Pharmacy 104	3
Physiology 141	4	General Pharmacy Lab. 105	2
Principles of Pharmacy 101	3	Pharmaceutical Calculations 102	3
		Pharmaceutical Chemistry 271	3
	15		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pharmacology 261	5	Intermediate Dispensing 109	3
General Pharmacy 206	3	Pharmacy Administration 123	3
Introductory Dispensing 107	2	Pharmacognosy 142	3
Pharmacy Administration 122	3	Pharmacognosy Lab. 143	2
Pharmacognosy 141	3	Pharmaceutical Chemistry 272	3
		Pharmaceutical Chemistry 273	3
	16		17

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Pharmaceutical Law 121	3	History of Pharmacy 103	2
Pharmaceutical Practice 208	7	Public Health & Hygiene 108	2
Pharmacy Administration 221	3	Medical Emergencies 206	2
Pharmaceutical Chemistry 274	3	Pharmaceutical Practice 209	7
		Pharmacy Administration 222	3
	16		16

COURSES OF INSTRUCTION

PHARMACY PROGRAM

Professors BACHMANN, GEILER, and SAXE; Associate Professors O'CONNELL and WOJCIK; Assistant Professors BLISSITT and CORE; Instructors GEORGE and THACKER.

PHARMACY

101. PRINCIPLES OF PHARMACY. I. 3 hr. A systematic study of the fundamental pharmaceutical processes, physical concepts, and terminology. Lectures and recitations. (45 hr.).

102. PHARMACEUTICAL CALCULATIONS. II. 3 hr. The mathematical problems and calculations encountered in and peculiar to pharmaceutical practice. (45 hr.).

103. HISTORY OF PHARMACY. II. 2 hr. A course designed to give the student a deeper appreciation of the background of pharmacy and its development from the ancient times to the present. Lectures and recitations. (30 hr.).

104. GENERAL PHARMACY 1, LECTURES. II. 3 hr. PR: Pharm. 101. A course dealing with the theories, processes of manufacture, and nomenclature of simple galenical preparations used in pharmacy, both official and nonofficial. Lectures and recitations. (45 hr.).

105. GENERAL PHARMACY 1, LABORATORY. II. 2 hr. A laboratory course to accompany Pharm. 104, where representative examples of various preparations are prepared. Laboratory. (90 hr.).

106. GENERAL PHARMACY 2. I. 3 hr. PR: Pharm. 104 and 105. A detailed study of the more complex types of official and nonofficial preparations. Lectures and recitations. (45 hr.).

107. INTRODUCTORY PHARMACY DISPENSING. I. 2 hr. PR: Pharm. 104 and 105. A study of the compounding and dispensing of the basic forms of medication. Laboratory. (90 hr.).

108. PUBLIC HEALTH AND HYGIENE. II. 2 hr. A study of the measures required for the maintenance of health and for the prevention and control of disease, and the application of the pharmacist's knowledge, skill, and facilities to the promotion of the health and welfare of the public in cooperation with public and private health agencies. Lectures and recitations. (30 hr.).

109. INTERMEDIATE PHARMACY DISPENSING. II. 3 hr. PR: Pharm. 106 and 107. The problems presented in compounding are discussed and the more difficult types of pharmaceutical preparations are made. Lectures and laboratory. (105 hr.).

116. PHARMACEUTICAL INVESTIGATION. I or II. 1-3 hr. Original investigation in pharmacy, pharmaceutical chemistry, or pharmacognosy.

117. Dispensing Pharmacy. I or II. 1-3 hr. PR: Pharm. 109. A practical course in the dispensing of prescriptions, open to a few students upon permission. The students assist in compounding of prescriptions in the Health Service Pharmacy under the immediate supervision of a registered pharmacist. (45 hr.).

201. Dispensing Pharmacy. I. 3 hr. PR: Pharm. 109. The theories and laboratory practices of previous compounding and dispensing courses are correlated with emphasis on the resolution of incompatibilities. Lectures and laboratory. (105 hr.).

203. Hospital Pharmacy. I, II. 2 hr. PR: Pharm. 109. A course arranged to give to the senior student practical hospital experience, under proper supervision, in the filling of prescriptions and the preparation of in-patient hospital medicinal needs.

204. Dispensing Pharmacy Lectures. II. 2 hr. PR: Pharm. 201. A comprehensive lecture course completing the coverage of theoretical aspects begun in Pharm. 201. (30 hr.).

205. Dispensing Pharmacy Laboratory. II. 2 hr. PR: Pharm. 201. A course designed to familiarize students with the compounding and dispensing of currently prescribed medication. (90 hr.).

206. Medical Emergencies. II. 2 hr. A course embracing accident prevention and medical emergency procedures as recommended for practicing pharmacists.

207. Seminar in Pharmaceutical Sciences. I, II. 1 hr. per sem. PR: Consent. Presentation and discussion of special topics in pharmaceutical sciences.

208. Pharmaceutical Practice. I. 7 hr. PR: Pharm. 109. A comprehensive course designed to bring all phases of pharmaceutical science to bear on pharmaceutical practice. Lectures, seminars, laboratory and in-service training.

209. Pharmaceutical Practice. II. 7 hr. PR: Pharm. 208. Continuation of Pharm. 208.

Pharmacy Administration

121. Pharmaceutical Law. I. 3 hr. A course designed to give the student a broad knowledge of the legal problems which confront the pharmacist. Special attention is given to the federal and state laws relating to the practice of pharmacy, narcotics, poisons, the pure food, drug and cosmetic acts, and the legal relationship of the pharmacist to the public. Lectures. (45 hr.).

122. Pharmacy Accounting. I. 3 hr. A study of the principles of accounting adapted to the needs of the pharmacist. Laboratory. (135 hr.).

123. Marketing of Drug Products. II. 3 hr. PR: Pharm. 122. A study of the marketing institutions and their functions involved in the distribution of drug products from the manufacturer to the retailer. Lectures and discussion. (45 hr.).

221. Pharmacy Management. I. 3 hr. A study of the principles and problems encountered in the acquisition, operation and control of a retail pharmacy. The course includes subject matter relating to store location, organization and management, leases, financing, departmentalization and arrangement, selection and supervision of personnel, expense and credit control. Lectures and discussion. (45 hr.).

222. Pharmacy Management. II. 3 hr. A study of the principles and methods used in managing the retail pharmacy. Subject matter includes buying and stock control, receiving and marking stock, pricing, sales promotion, and insurable risks. Lectures and discussion. (45 hr.).

Pharmacognosy

141. Pharmacognosy. I. 3 hr. PR: Biochem. 139, Microbiol. 220. A study of drugs of biological origin, both plant and animal; their specific origins, methods of preparation, active constituents, standards and medicinal use. Lectures and recitations. (45 hr.).

142. Pharmacognosy. II. 3 hr. PR: Pharm. 141. A continuation of Pharmacy 141. Lectures and recitations. (45 hr.).

143. Pharmacognosy Laboratory. II. 2 hr. PR: Pharm. 141. A study of drugs of biological origin; their identification by macroscopic and microscopic methods; biosynthesis of active constituents; isolation of active constituents; and identification and testing of the isolated constituents. Laboratory. (90 hr.).

Pharmaceutical Chemistry

271. Inorganic Pharmaceutical Chemistry. II. 3 hr. PR: Pharm. 101. A study of the inorganic chemicals associated with the practice of pharmacy. (45 hr.).

272. Organic Pharmaceutical Chemistry. II. 3 hr. PR: Biochem. 139. A study of the modern synthetic drugs and natural products, with regard to nomenclature, methods of synthesis and relation to other drugs having similar therapeutic, physical and chemical properties. (45 hr.).

273. Organic Pharmaceutical Chemistry. II. 3 hr. PR: Pharm. 272. A continuation of Pharm. 272. (45 hr.).

274. Assay and Pharmaceutical Testing. I. 3 hr. PR: Pharm. 273. Application of basic scientific principles to the standardization and analysis of drugs and pharmaceutical products, with particular attention to newer analytical techniques. Lectures and laboratory. (105 hr.).

The Division of Military Science and The Division of Air Science

BASIC COURSE–FIRST YEAR, 2 hr. (Army)

MILITARY SCIENCE 1. Leadership Laboratory; Military Theory and Techniques; Individual Weapons; Organization of the Army; 4 hr. per week during the first half of the semester; 2 hr. per week during the second half of the semester.

MILITARY SCIENCE 2. Leadership Laboratory; U. S. Army and National Security; Counterinsurgency Training; Map Reading. 2 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

BASIC COURSE–FIRST YEAR, 2 hr. (Air Force)

AIR SCIENCE 1. Foundations of Aerospace Power. An introductory examination of the factors of aerospace power, major ideological conflicts, requirements for military forces in being, responsibilities of citizenship, and development and traditions of the military profession; Leadership Laboratory; 4 hr. per week during the first half of the semester; 2 hr. per week during the second half of the semester.

AIR SCIENCE 2. Foundations of Aerospace Power. An introductory examination of the factors of role and attributes of the professional officer in American democracy, organization of the armed forces as factors in the preservation of national security, and the United States Air Force as a major factor in the security of the free world; Leadership Laboratory; 2 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

BASIC COURSE–SECOND YEAR, 2 hr. (Army)

MILITARY SCIENCE 3. Leadership Laboratory; Map Reading; Small Unit Tactics; 2 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

MILITARY SCIENCE 4. Leadership Laboratory; American Military History; 4 hr. per week during the first half of the semester; 2 hr. per week during the second half of the semester.

BASIC COURSE–SECOND YEAR, 2 hr. (Air Force)

AIR SCIENCE 3. World Military Systems. A comparison of the mission, organization, functions, and characteristics of free world land, naval, and air forces. Includes a general study of weapon systems and their employment, awareness of developmental trends, changing concepts of force employment, and the place of these forces in allied regional security organizations; Leadership Laboratory; 4 hr. per week during first half of the semester; 2 hr. per week during second half of the semester.

AIR SCIENCE 4. World Military Systems. A study of the mission, organization, functions, and characteristics of communist air, land, and naval forces and the characteristics and operations of communist regional security organizations; exploration of the trends in development and employment of military power and the impact of these trends on world affairs; Leadership Laboratory; 2 hr. per week during first half of the semester; 4 hr. per week during second half of the semester.

ADVANCED COURSE–THIRD YEAR, 3 hr. (Army)

MILITARY SCIENCE 105. Leadership Laboratory; Leadership; Military Teaching Methods; Branches of the Army; 5 hr. per week.

MILITARY SCIENCE 106. Leadership Laboratory; Small Unit Tactics; Counterinsurgency; 5 hr. per week.

ADVANCED COURSE–THIRD YEAR, 3 hr. (Air Force)

AIR SCIENCE 105. PR: Basic Course or equiv.* Growth and Development of Aerospace Power. A survey course describing the nature of war, development of airpower in the United States, and Air Force concepts, doctrine, and employment; Leadership Laboratory; 6 hr. per week during first half of the semester; 4 hr. per week during second half of the semester.

AIR SCIENCE 106. PR: Air Sci. 105 or consent. Growth and Development of Aerospace Power. Astronautics and space operations, the future development of aerospace power, and the United States space programs, vehicles, systems and problems in space exploration; Leadership Laboratory; 4 hr. per week during the first half of the semester; 6 hr. per week during the second half of the semester.

ADVANCED COURSE–FOURTH YEAR, 3 hr. (Army)

MILITARY SCIENCE 107. Leadership Laboratory; Role of the U. S. World Affairs; Command and Staff; Estimate of the Situation and Combat Orders; 5 hr. per week.

MILITARY SCIENCE 108. Leadership Laboratory; Logistics, Supply Management; Military Law; Army Administration; Service Orientation; 5 hr. per week.

ADVANCED COURSE–FOURTH YEAR, 3 hr. (Air Force)

AIR SCIENCE 107. PR: Air Sci. 105 and 106 or consent. Intensive study of contemporary world politics (political science elective) and seminar of leadership and career opportunities in the Air Force; Leadership Laboratory; 6 hr. per week during the first half of the semester; 4 hr. per week during the second half of the semester.

AIR SCIENCE 108. PR: Air Sci. 105, 106 and 107 or consent. Modern power politics and American foreign relations (political science elective); seminar on the junior officer in the Air Force; Leadership Laboratory; 4 hr. per week during the first half of the semester; 6 hr. per week during the second half of the semester.

*Equivalent credit as granted by the Registrar of the University and the Professor of Air Science. Students who have had previous active service and desire to enter this course must have their requirements and status determined by the Professor of Air Science at the time of initial entry into the University. See page 73 of this **Catalog** for general regulations of the Division of Military Science and Division of Air Science.

The School of Music

OBJECTIVE

Truly professional education of the highest order by outstanding performers and inspired educators for the performing and creative student and for the student preparing for a teaching career in elementary, secondary, or higher educational institutions.

PURPOSES

1. To offer professional training in the fields of instrumental and vocal performance, musical composition, church music, and lyric theatre.
2. To provide the necessary musical skills for the future music educators of the country.
3. To offer opportunities for students in all departments of the University to participate in musical activities and become conscious of the general cultural value of music.
4. To provide professional instruction for the talented young musicians of preuniversity age.
5. To provide the facilities and staff to stimulate scholarly research.
6. To stimulate continuing education in music throughout the State in cooperation with the University Extension Division.
7. To serve the University, State, and area by student and faculty presentations of lectures, workshops and clinics, concerts, recitals, and opera productions.

GENERAL INFORMATION AND DEGREE REQUIREMENTS

The School of Music of West Virginia University is a member of the National Association of Schools of Music. The requirements for entrance and for graduation as set forth in the *Announcements* of the School of Music are in accordance with the published regulations of that organization. The Music Education Program offered in the School of Music is fully accredited by the National Council for Accreditation of Teacher Education.

The School of Music is housed in a magnificent new air conditioned building. Constructed at a cost of over a million dollars, the building is completely modern in every respect, with special attention having been given to the acoustical problems.

Included among its facilities are 26 teaching studios, 30 practice rooms, band and orchestra rehearsal room, classrooms, student lounge, library, listening rooms, recital hall, dressing rooms, projection and recording room, and administrative offices.

The faculty of the School of Music consists of 35 artist-teachers and 10 graduate assistants. Each member was carefully selected because his musical background combined inspired teaching with outstanding experience as a professional performer.

The performing groups maintained by the School of Music are a Symphony Orchestra, four Bands, three Choruses, Opera Department, The American Arts Trio, and numerous student chamber music ensembles. Many concerts are given throughout the year by the School of Music, and, in addition, a number of outstanding concerts are provided by The University Artists Series. Morgantown's close proximity to Pittsburgh makes that city's musical events available to University students.

UNIVERSITY CORE CURRICULUM REQUIREMENTS

All undergraduates entering the University for the first time in September, 1964, or later must complete the University Core Curriculum requirements in order to graduate. (See page 93).

The Bachelor of Music Degree

The Bachelor of Music Degree is conferred upon any student who complies with the general regulations of the University concerning degrees, satisfies all entrance and departmental requirements,[1] and completes one of the following curricula in music with an average of two grade-points per semester hour:[2]

A. Piano, pipe-organ, band or orchestral instruments
B. Theory and composition
C. Music Education

A freshman student who has less than a 1.00 (D) grade-point average at the close of his second semester is automatically suspended from the School of Music. A freshman who has less than a 1.5 grade-point average at the close of his second semester is automatically placed on probation for the following semester. The terms of probation will be determined by the Scholarship Committee.

For admission to the junior year in the School of Music, a student must have established a 2.0 (C) grade-point average.

Transfer students must establish transfer credit from other institutions during the first semester in which they are enrolled in the School of Music.

Before graduation, all candidates for the degree of Bachelor of Music majoring in Applied Music must have three credits in public performances. All candidates for the degree of Bachelor of Music majoring in Music Education and Theory and Composition must have two credits in public performances. These credits will be granted on the following basis: one credit for each solo performance; one-half credit for each ensemble performance or each accompaniment on piano or organ of major length and difficulty. All but one of the required credits must be achieved by solo performances.

All music majors are required to participate not less than two clock hours per week in a major performing group.

Students are responsible for correctly fulfilling all requirements.

[1]See Undergraduate Applied Music Requirements, page 32 of the 1964-65 School of Music **Announcements.**

[2]Not more than 10 hours in Orchestra, Bands, and Choruses will be counted toward requirements for graduation. Grade points in excess of 2 hours credit in choral groups will not be counted towards requirements for graduation of students in Music Education with an instrumental emphasis. Grade points in excess of 2 hours credit in Orchestra or Bands will not be counted towards requirements for graduation of students in Music Education with choral emphasis. For curricula other than Music Education, not more than 8 hours of Orchestra, Bands, and Choruses will be counted toward requirements for graduation.

UNDERGRADUATE CURRICULA LEADING TO THE DEGREE BACHELOR OF MUSIC

Applied Curriculum

I. WITH A MAJOR IN PIANO

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Piano	4	4	Piano 7
M. 1, 2	4	4	First-year theory
M. 102 or M. 105	1	1	Musical organization
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	

Women 34 hr.

Men 38 hr.

Sophomore Year			
M. 150, Piano	4	4	Piano 8
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
M. 155	1	1	Chamber Music
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	

Women 34 hr.

Men 38 hr.

Junior Year			
M. 150, Piano	4	4	Piano 9
M. 252, 280, 281, 282, or 283	3	3	Form; Survey Courses
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
M. 155	1	1	Chamber Music
M. 218, 219	1	1	Methods and pedagogy
M. 253, 254	2	2	Counterpoint
Elective	2	2	Music
Elective	3	3	Academic

Women 34 hr.

Men 34 hr.

Senior Year			
M. 150, Piano	4	4	Piano 10
M. 155	1	1	Chamber music
M. 220, 221	1	1	Repertoire
M. 199		2	Recital
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
Elective	4	4	Music
Elective	3	3	Academic

Women 30 hr.

Men 30 hr.

Total 132 hr. (Women)

138 hr. (Men)

Applied Curriculum

II. WITH A MAJOR IN ORGAN

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Organ	4	4	Organ 7
M. 150, Piano	2	2	Piano 5
M. 1, 2	4	4	First-year theory
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
		Women 38 hr.	
		Men 42 hr.	
Sophomore Year			
M. 150 Organ	4	4	Organ 8
M. 150, Piano	2	2	Piano 6
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
		Women 36 hr.	
		Men 38 hr.	
Junior Year			
M. 150, Organ	4	4	Organ 9
M. 183, 280, 281, 282 or 283	2	3	Conducting; Survey Courses
M. 252	3	-	Form
M. 253, 254	2	2	Counterpoint
M. 218, 219	1	1	Methods and pedagogy
M. 102 or M. 105	1	1	Univ. Chorus; Univ Choir
Elective	2	2	Music
Foreign Language	3	3	German or Romance language
		Women 34 hr.	
		Men 34 hr.	
Senior Year			
M. 150, Organ	4	4	Organ 10
M. 102 or M. 105	1	1	Univ. Chorus; Univ. Choir
M. 220, 221	1	1	Repertoire
M. 199	-	2	Recital
Electives	6	4	Music
Electives	3	3	Academic
		Women 30 hr.	
		Men 30 hr.	

Total 138 hr. (Women)

144 hr. (Men)

Applied Curriculum

III. WITH A MAJOR IN FLUTE, OBOE, CLARINET, SAXOPHONE, BASSOON, HORN, TRUMPET, TROMBONE, EUPHONIUM, TUBA, DOUBLE BASS, OR PERCUSSION

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Music	4	4	Instrument 7
M. 1, 2	4	4	First-year theory
M. 150, Piano	2	2	Piano 2
M. 100 or M. 103	1	1	Band; Orchestra
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	

Women 38 hr.

Men 42 hr.

Sophomore Year			
M. 150, Applied Music	4	4	Instrument 8
M. 150, Piano	2	2	Piano 3
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 100 or M. 103	1	1	Band; Orchestra
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	

Women 36 hr.

Men 38 hr.

Junior Year			
M. 150, Applied Music	4	4	Instrument 9
M. 117; M. 118	2	2	Instn; Orch. & Band Arr.
M. 218, 219	1	1	Methods and pedagogy
M. 155	1	1	Chamber music
M. 100 or M. 103	1	1	Band; Orchestra
M. 253, 254	2	2	Counterpoint
Elective	2	2	Music
Elective	3	3	Academic

Women 32 hr.

Men 32 hr.

Senior Year			
M. 150, Applied Music	4	4	Instrument 10
M. 280, 281, 282 or 283; 199	3	2	Survey Courses; Recital
M. 220, 221	1	1	Repertoire
M. 155	1	1	Chamber music
M. 100 or M. 103	1	1	Band; Orchestra
Elective	2	2	Music
Elective	3	3	Academic

Women 29 hr.

Men 29 hr.

Total 135 hr. (Women)

141 hr. (Men)

Applied Curriculum

IV. WITH A MAJOR IN VIOLIN, VIOLA, OR VIOLONCELLO

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Music	4	4	Instrument 7
M. 150, Piano	2	2	Piano 2
M. 1, 2	4	4	First-year theory
M. 103	1	1	Orchestra
English 1, 2	3	3	Composition and rhetoric
Humanities 1	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	

Women 38 hr.

Men 42 hr.

Sophomore Year			
M. 150, Applied Music	4	4	Instrument 8
M. 150, Piano	2	2	Piano 3
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 103	1	1	Orchestra
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ.	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	

Women 36 hr.

Men 38 hr.

Junior Year			
M. 150, Applied Music	4	4	Instrument 9
M. 117, 118	2	2	Instn; Orch. & Band Arr.
M. 218, 219	1	1	Methods and pedagogy
M. 155	1	1	Chamber music
M. 103	1	1	Orchestra
M. 253, 254	2	2	Counterpoint
Elective	2	2	Music
Elective	3	3	Academic

Women 32 hr.

Men 32 hr.

Senior Year			
M. 150, Applied Music	4	4	Instrument 10
M. 280, 281, 282, or 283; 199	3	2	Survey Courses; Recital
M. 220, 221	1	1	Repertoire
M. 155	1	1	Chamber music
M. 103	1	1	Orchestra
Elective	2	2	Music
Elective	3	3	Academic

Women 29 hr.

Men 29 hr.

Total 135 hr. (Women)

141 hr. (Men)

Applied Curriculum

V. WITH A MAJOR IN VOICE

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Voice	4	4	Voice 7
M. 150, Piano	2	2	Piano 2
M. 1, 2	4	4	First-year theory
M. 102 or 105	1	1	Choral Union; Univ. Choir
English 1, 2	3	3	Composition and rhetoric
Language	3	3	Italian, French, German[1]
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 36 hr.		
	Men 40 hr.		
Sophomore Year			
M. 150, Voice	4	4	Voice 8
M. 150, Piano	2	2	Piano 3
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 102 or M. 105	1	1	Choral Union or Univ. Choir
Language	3	3	Italian, French, German
Phys. Educ.	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
	Women 36 hr.		
	Men 38 hr.		
Junior Year			
M. 150, Voice	4	4	Voice 9
M. 20	2	2	Intro. Opera theatre
M. 253, 254	2	2	Counterpoint
M. 102 or M. 105	1	1	Choral Union or Univ. Choir
Elective	2	2	Music
Language	3	3	Italian, French, German
English elective	3	3	English 18; 3, 4, 5, or 6
	Women 34 hr.		
	Men 34 hr.		
Senior Year			
M. 150, Voice	4	4	Voice 10
M. 210	2	2	Opera theatre
M. 218, 219	1	1	Methods and pedagogy
M. 199	–	2	Recital
M. 280, 281, 282, or 283	3	–	Survey Courses
M. 120	–	2	Choral arranging
M. 102 or M. 105	1	1	Choral Union or Univ. Choir
M. 220, 221	1	1	Repertoire
Elective	2	2	Music
	Women 29 hr.		
	Men 29 hr.		
	Total 135 hr. (Women)		
	141 hr. (Men)		

[1]One year each of Italian, French, German.

THEORY AND COMPOSITION CURRICULUM

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150	4	4	Applied music*
M. 1, 2	4	4	First-year theory
M. 100, 102, 103, 105, or 155	1	1	Musical organization**
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 34 hr.		
	Men 38 hr.		
Sophomore Year			
M. 150	4	4	Applied music
M. 3, 4	4	4	Second-year theory
M. 114	2	2	Composition
M. 140, 141	3	3	History of music
M. 100, 102, 103, 105, or 155	1	1	Musical organization
English elective	3	3	English 18; 3, 4, 5, or 6
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
	Women 36 hr.		
	Men 38 hr.		
Junior Year			
M. 150	4	4	Applied music
M. 252	3	-	Form
M. 253, 254	2	2	Counterpoint
M. 114	2	2	Composition
M. 117, 118	2	2	Instn.; Orchn. and Band Arr.
M. 100, 102, 103, 105, or 155	1	1	Musical organization
French, German, or Italian 1, 2	3	3	First-year foreign language
	Women 31 hr.		
	Men 31 hr.		
Senior Year			
M. 150	4	4	Applied music
M. 183, 184	2	2	Conducting
M. 114, 198	2	2	Composition; Project***
M. 280, 281, 282, or 283	3	3	Survey Courses
M. 120	2	-	Choral arranging
M. 100, 102, 103, 105, and 155	1	1	Musical organization
French, German, or Italian	3	3	Second-year foreign language
	Women 32 hr.		
	Men 32 hr.		

Total 133 hr. (Women)

139 hr. (Men)

*Candidates for this degree must complete grade level 7 on their major instrument and grade level 4 in piano.

**At least 4 credit hours must be in a major performing group.

***Major project in theory or composition.

MUSIC EDUCATION CURRICULUM – Vocal Emphasis

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Major	2	2	Voice or Keyboard 4
M. 150, Applied Minor	1	1	Voice 1 or Piano 2A, 2B[1]
M. 84, 85, Applied Class	1	1	String class
M. 1, 2	4	4	First-year theory
M. 102 or M. 105	1	1	Choral Union; Univ. Choir
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	General humanities[2]
Phys. Educ	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 34 hr.		
	Men 38 hr.		
Sophomore Year			
M. 150, Applied Major	2	2	Voice or Keyboard 5
M. 150, Applied Minor	2	2	Voice 2 or Piano 3
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 102 or M. 105	1	1	Choral Union; Univ. Choir
Soc. Sci. 1, 2	4	4	Introductory general course
Educ. 105, 106	3	3	Human growth and development
Educ. 100	1	_	Orientation and selection
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
	Women 41 hr.		
	Men 43 hr.		
Junior Year			
M. 150, Applied Major	2	2	Voice or Keyboard 6
M. 80, 81 or 82, 83, Applied Class	1	1	Woodwind or Brass class
M. 181, 182	2	3	Music Ed. elem; Mus. Ed. sec.
M. 183, 184	2	2	Conducting
M. 120	_	2	Choral arranging
M. 102 or M. 105	1	1	Choral Union; Univ. Choir
Biol. or Phys. Sci. 1, 2	4	4	Gen. Biol; intro. gen. course
Health Ed. 102	2	_	School health program
Art 30	_	2	Appreciation of the fine arts
	Women 32 hr.		
	Men 32 hr.		
Senior Year			
M. 150, Applied Major	2	2	Voice or Keyboard 7
M. 86, Applied Class	1	_	Percussion class
M. 102 or M. 105	1	1	Choral Union; Univ. Choir
English 18; 3, 4, 5, or 6	6	_	Adv. written and spoken; Lit.
Educ. 115	2	_	Student teaching—elementary
Educ. 130	2	_	Materials and methods—elem.
Educ. 125	_	4	Student teaching—secondary
Educ. 120	_	4	Principles of teaching
Educ. 169	_	2	Materials and methods—sec.
Elective	_	1	Elective
	Women 28 hr.		
	Men 28 hr.		

Total: 135 hr. Women; 141 hr. Men

[1]Students must demonstrate piano level 4 to use organ as an applied minor.
[2]With the approval of the adviser, students may take History 1, 2 instead of Humanities 1, 2.

MUSIC EDUCATION CURRICULUM – Instrumental Emphasis[1]

Freshman Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Major	2	2	Major instrument 4
M. 150, Applied Piano or Instr.	1	1	Piano 1A, 1B or Instr. 3
M. 84, 85, Applied Class	1	1	String class
M. 1, 2	4	4	First-year theory
M. 100 or 103	1	1	Band, Orchestra
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	General humanities[2]
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 34 hr.		
	Men 38 hr.		
Sophomore Year			
M. 150, Applied Major	2	2	Major instrument 5
M. 150, Applied Piano or Instr.	1	1	Piano 2A, 2B, or Instr. 4
M. 82, 83, Applied Class	1	1	Brass class
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 100, 102, 103	1	1	Band, Orchestra; (Chorus)[3]
Soc. Sci. 1, 2	4	4	Introductory general course
Educ. 105, 106	3	3	Human growth and development
Educ. 100	1	_	Orientation and selection
Mil. or Air Sci. 3, 4 (Men)	2	2	
Phys. Educ. (Women)	1	1	
	Women 41 hr.		
	Men 43 hr.		
Junior Year			
M. 150, Applied Major	2	2	Major instrument 6
M. 150, Applied Voice	1	1	Voice 1
M. 80, 81, Applied Class	1	1	Woodwind class
M. 117, 118	2	2	Instn.; Orchn. and Band Arr.
M. 181, 182	3	3	Mus. Ed. elem.; Mus. Ed. sec.
M. 183, 184	2	2	Conducting
M. 100, 102, 103	1	1	Band, Orchestra; (Chorus)[3]
Biol. or Phys. Sci. 1, 2	4	4	Gen. Biol.; Intro. gen. course
Art 30	_	2	Appreciation of the fine arts
Health Educ. 102	2	_	School health program
	Women 36 hr.		
	Men 36 hr.		
Senior Year			
M. 150, Applied Major	2	2	Major instrument 7
M. 86, Applied Class	1	_	Percussion class
M. 100, 102, 103	1	1	Band, Orchestra (Chorus)
English 18; 3, 4, 5, 6	6	_	Adv. written and spoken; Lit.
Educ. 115	2	_	Student teaching–elementary
Educ. 130	2	_	Materials and methods–elem.
Educ. 125	_	4	Student teaching–secondary
Educ. 120	_	4	Principles of teaching
Educ. 169	_	2	Materials and methods–sec.
Elective	_	1	Elective
	Women 28 hr.		
	Men 28 hr.		

Total: 139 hr. Women; 145 hr. Men

[1]Piano majors in Instrumental will complete level 4 on one other instrument.

[2]With the approval of the adviser, students may take History 1, 2 instead of Humanities 1, 2.

[3]Music Education majors in Instrumental are required to be in a major choral group for at least one year.

The student is responsible for correctly fulfilling all requirements. Each student should review his course requirements both before and after every registration period so that errors or omissions will be detected immediately.

Certification

Students successfully completing the Music Education curriculum will qualify for the Professional Certificate, Grades 1-12. This certificate qualifies one to teach music on both elementary and secondary levels.

Music majors wishing to qualify for a second teaching field other than music at secondary level will satisfy the requirements for the Professional Certificate, Grades 7-12, by completing the requirements of the second teaching field and the following courses in Education: 100, 105, 106, 120, 124, 169, and an approved 2-hour elective in Secondary Education.

Students who choose Music as the first teaching field, whether enrolled in the School of Music or in the College of Education, must complete level 7 in the applied major. Students who are enrolled in the College of Education who choose Music as the second teaching field must complete level 5 in the applied major. (See the College of Education *Announcements.*)

Accelerated Music Education Program

Students wishing to complete the Music Education curriculum in less than four years may, with the approval of the adviser and the Chairman of Music Education, accelerate their program by attending summer sessions. All requirements of the four-year curriculum must be satisfied.

OPTIONAL FIVE-YEAR PROGRAM

An optional five-year program has been arranged for students who desire to meet the requirements of majors in both Applied Music and Music Education. Admission to this program is by consent of the Chairman of Applied Music and the Scholarship Committee after the student has completed two semesters. This curriculum satisfies the requirements of the Professional Certificate, Grades 1-12.

COMBINED APPLIED-MUSIC EDUCATION CURRICULUM

First Year	*First Sem.*	*Second Sem.*	*Course Description*
M. 150, Applied Music	6	6	Major, minor or other
M. 1, 2	4	4	First-year theory
M. 100 to 105	1	1	Band, orchestra, choral
English 1, 2	3	3	Composition and rhetoric
Humanities 1, 2	4	4	General humanities
Phys. Educ.	1	1	
Mil. or Air Sci. 1, 2 (Men)	2	2	
	Women 38 hr.		
	Men 42 hr.		
Second Year			
M. 150, Applied Music	6	6	Major, minor or other
M. 84, 85, Applied Class	1	1	String class
M. 3, 4	4	4	Second-year theory
M. 140, 141	3	3	History of music
M. 100 to 105	1	1	Band, orchestra, choral
Soc. Sci., 1, 2	4	4	Introductory general course
Phys. Educ. (Women)	1	1	
Mil. or Air Sci. 3, 4 (Men)	2	2	
	Women 40 hr.		
	Men 42 hr.		

Third Year

M. 150, Applied Music	6	6	Major, Minor or other
M. 82, 83, Applied Class	1	1	Brass class
M. 218, 219	2	2	Methods and pedagogy
M. 117, 118 or 120	2	2	Instn.; Orch. and Band, or Choral Arr.
M. 183, 184	2	2	Conducting
M. 100 to 105	1	1	Band, orchestra, choral
Biol. or Phys. Sci. 1, 2	4	4	Gen. biol.; intro. gen. course
English 18; 3, 4, 5, 6	3	3	Adv. written and spoken; Lit.

Women 42 hr.

Men 42 hr.

Fourth Year

M. 150, Applied Major	4	4	Applied major
M. 80, 81, Applied Class	1	1	Woodwind class
M. 253, 254	2	2	Counterpoint
M. 181, 182	3	3	Mus. Ed.—elem.; Mus. Ed.—sec.
M. 100 to 105	1	1	Band, orchestra, choral
Educ. 105, 106	3	3	Human growth and development
Educ. 100	1	_	Orientation and Selection
Health Ed. 102	2	_	School health program
Art 30	_	2	Appreciation of the fine arts

Women 33 hr.

Men 33 hr.

Fifth Year

M. 150, Applied Major	4	4	Major, minor or other
M. 86, Applied Class	1	_	Percussion class
M. 220, 221	1	1	Repertoire
M. 100 to 105	1	1	Band, orchestra, choral
M. 199	_	2	Recital
Educ. 115	_	2	Student teaching—elementary
Educ. 130	_	2	Materials and methods—elem.
Educ. 125	4	_	Student teaching—secondary
Educ. 120	4	_	Principles of teaching
Educ. 169	2	_	Materials and methods—sec.
Elective	_	2	Elective

Women 31 hr.

Men 31 hr.

Total 184 hr. Women

190 hr. Men

The numerous possible combinations of Applied Music with Music Education cannot be listed separately in this bulletin. When the student becomes a candidate for this degree, his adviser designates the specific courses which must be taken in order to satisfy the requirements for both Applied Music and Music Education. By attending summer sessions, it may be possible to complete the combined curriculum in five years.

COURSES OF INSTRUCTION (Undergraduate)

1. THEORY. I. 4 hr. Thorough training in the melodic, harmonic and rhythmic elements of music. Triads, intervals, keys, scales, cadences, notation, rhythmic reading, sight singing, melodic and harmonic dictation, keyboard harmony. Staff

2. THEORY. II. 4 hr. PR: Music 1. Continuation of the melodic and harmonic dictation. Seventh chords, modal scales, key relationships, modulation, transposition, and the study of four-part writing, keyboard harmony. Staff

3. THEORY. I. 4 hr. PR: Music 1, 2. Study of the harmonic technique of the 18th and 19th centuries. Melodic and harmonic dictation, four-part writing, modulation, altered chords, chorale harmonization, keyboard harmony. Staff

4. THEORY. II. 4 hr. PR: Music 1, 2, 3. Continuation of Music 3 drills. Dictation of chorales. Contrapuntal technique of the 18th century. Keyboard harmony. Staff

10. MUSIC IN HUMAN RELATIONS. I, II. 2 hr. A course designed to supply a foundational, cultural, music background to a clearer understanding of music as a daily living experience. Lectures, demonstrations, concerts, recordings. Not open to music majors. Staff

11. MUSIC AS AN ART AND SCIENCE. I, II. 2 hr. PR: Music 10 or its equiv. Music in the elementary school curriculum. Music methods and materials for teachers in the first three grades. Two recitation periods and one laboratory period per week. Not open to music majors. Miss Scott

12. MUSIC MATERIALS AND PROCEDURES. I, II. 2 hr. PR: Music 11 or its equiv. Continuation of Music 11. Methods and materials for teachers in upper grades. Criteria for utilization of notational elements. Two recitation periods and one laboratory period per week. Not open to music majors. Miss Scott

20. INTRODUCTION TO OPERA THEATRE. I, II. 0-2 hr. Maximum credit 8 hr. PR: Consent. Practical work in all aspects of Lyric Theatre production. Development of lyric theatre stage technique through movement studies, performance in minor roles, and operatic scenes. Mr. Golz

77. ENJOYMENT OF MUSIC. I. 1 hr. A non-technical course dealing with the elements of music—rhythm, timbre, form, harmony, melody. Not open to music majors. Mr. Wood

78. ENJOYMENT OF MUSIC. II. 1 hr. Continuation of Music 77. Not open to music majors. Mr. Wood

80. WOODWIND CLASS. I, II. 1 hr. Beginning instruction on flute and clarinet. Staff

81. WOODWIND CLASS. I, II. 1 hr. Beginning instruction on oboe and bassoon. Staff

82. BRASS CLASS. I, II. 1 hr. Beginning instruction on trumpet and trombone. Staff

83. BRASS CLASS. I, II. 1 hr. Beginning instruction on baritone and tuba. Staff

84. STRING CLASS. I, II. 1 hr. Beginning instruction on violin and viola. Staff

85. STRING CLASS. I, II. 1 hr. Beginning instruction on cello and string bass. Staff

86. PERCUSSION CLASS. I. 1 hr. Beginning instruction on percussion. Staff

100. BAND. 0 or 1 hr. Mr. Borkowski and Mr. Udell

102. UNIVERSITY CHORAL UNION. 0 or 1 hr. Mr. Golz

103. University-Community Symphony Orchestra. 0 or 1 hr. Mr. Portnoy

105. University Choir. 0 or 1 hr. Mr. Golz

114. Composition. I, II. 2 hr. PR: Music 4 or consent. Creative writing. Course may be repeated for credit; maximum credit 10 hours. Mr. Canning

117. Instrumentation. I. 2 hr. PR: Music 2. Study of the characteristics of band and orchestral instruments and their use in scoring. Mr. Canning

118. Orchestration and Band Arranging. II. 2 hr. Music 117. Problems in scoring for orchestral ensembles and band. Staff

120. Choral Arranging. II. 2 hr. PR: Music 2. A study of the characteristics and problems in scoring for choral combinations. Mr. Canning

140. History of Music. I. 3 hr. Survey of music history from the contemporary period through the romantic and classic periods. Miss Scott

141. History of Music. II. 3 hr. PR: Music 140. Continuation of Music 140 from the baroque to the pre-Christian era. Miss Scott

150. Applied Music. I, II. 1-4 hr. Open to qualified students in any field in Applied Music. Course number may be repeated as many times as necessary or desirable. Credit given at the following rates:

1. For music majors, two hours for each 30-minute weekly lesson.
2. For other students, a maximum of one 30-minute lesson per week at one hour of credit.
3. Students in lower grade levels of Applied Music may be grouped in small classes for initial instruction. 1-2 hr. credit. Staff

155. Chamber Music. I, II. 0 to 1 hr. This course provides the opportunity to perform in small ensembles. Course may be repeated. Staff

181. Music Education. I. 3 hr. Essentials of music education in the elementary grades. Mr. Brown

182. Music Education. II. 3 hr. Essentials of music education in junior and senior high school. Mr. Brown

183. Conducting. I. 2 hr. A basic course in conducting techniques, both choral and instrumental. Mr. Wood

184. Conducting. II. 2 hr. PR: M. 183. Continuation of Music 183, including more advanced score reading and conducting techniques, both choral and instrumental. Mr. Wood

198. Major Project in Composition or Theory. 2 hr. PR: Music 4. Staff

199. Graduation Recital. I, II. 0 to 2 hr. Required for degree in Applied Music. Staff

200. Band, Orchestra, Choral, Opera Theatre, and Music Education Clinics. 2 hr. Special problems of organization and development of the various performing organizations. Lecture, laboratory and discussion groups. Staff

201. Music in the Elementary School. I, II. 2 hr. PR: Music 10, 11, 12, or consent. Development of skills, procedures, techniques, and materials used by the general classroom teacher of music in grades 1-8. Not open to music majors. Miss Scott

210. Opera Theatre. I, II. 0-2 hr. Maximum credit 8 hr. PR: Music 20 or consent. Continuation of Music 20. Performance of major roles and advanced production techniques. Qualified students will undertake production-direction projects under supervision. Mr. Golz

218. Methods and Pedagogy in Major Applied Fields. I. 1 hr. PR: Music 150. Staff

219. Methods and Pedagogy in Major Applied Fields. II. 1 hr. PR: Music 218. Staff

220. Repertoire. I. 1 hr. Staff

221. Repertoire. II. 1 hr. Staff

246. Music in the Junior High School. I. 2 hr. PR: Music 181-182 or equiv. A consideration of the potentialities and special needs of the junior high school in music education; programs, procedures, and materials. Mr. Brown

250. Advanced Harmony. II. 3 hr. PR: Music 4 or consent. A course in the harmonic practice of Romantic and twentieth century composers. Staff

252. Analysis of Musical Form. I. 3 hr. PR: Music 4. A detailed study of the structure of music. Mr. Engberg

253. Counterpoint. I. 2 hr. PR: Music 4 or consent. Sixteenth century counterpoint. Mr. Lorince

254. Counterpoint. II. 2 hr. PR: Music 4. Eighteenth century counterpoint. Mr. Lorince

280. Survey of Operatic Music. II. 3 hr. PR: Music 141. Mr. Schafer

281. Survey of Symphonic Music. I. 3 hr. PR: Music 141. Mr. Schafer

282. Studies in Contemporary Music. I. 3 hr. PR: Music 141. Mr. Schafer

283. Survey of Chamber Music. II. 3 hr. PR: Music 141. Mr. Schafer

BEGINNING APPLIED CLASSES

Class instruction at the beginning levels is provided for 1 hour credit on the following instruments and in voice:

Woodwind—Music 80 and 81; Brass—Music 82 and 83; String—Music 84 and 85; Percussion—Music 86; Piano—Music 150, Sections 24 and 25; Voice—Music 150, Sections 26 and 27.

ORGANIZATIONS

Music organizations available to all University students with or without 1 hour credit are: Band—Music 100; University Choral Union—Music 102; University-Community Symphony Orchestra—Music 103; University Choir—Music 105; Chamber Music—Music 155; Opera Theatre—Music 20 and 210.

GRADUATE SCHOOL

See the *Announcements* of the School of Music and the *Announcements* of the Graduate School for information concerning graduate programs in the School of Music.

COURSES OF INSTRUCTION (Graduate)

Applied Music

218. Methods and Pedagogy in Major Applied Fields. I. 1 hr. PR: Music 150. Staff

219. Methods and Pedagogy in Major Applied Fields. II. 1 hr. PR: Music 218. Staff

300. Applied Music. I, II. 1-4 hr. Open to qualified students in any field in Applied Music. Course number may be repeated as many times as necessary or desirable. A student must demonstrate ability of grade-level 4 on an instrument to receive credit in Music 300 on that instrument. Students other than music majors may take a maximum of one 30-minute lesson per week at one hour credit. Staff

Sections 26, 27. I, II. Voice class for graduate students stressing fundamentals of voice production and pedagogy. Mr. McGregor

309. Master Class in Applied Repertoire. I, II. 2 hr. PR: Consent. A master class designed to give coverage through performance of the literature of a specific Applied Music field. Course may be repeated for credit; maximum credit 8 hours. Staff

Conducting

310. Conducting. I. 3 hr. PR: Music 184 or equiv. A graduate course in instrumental and choral conducting. Major works are prepared and conducted through the use of recordings and the large University music organizations. Mr. Golz

311. Conducting. II. 3 hr. PR: Music 310. Mr. Golz

Literature

220. Repertoire. I. 1 hr. Staff

221. Repertoire. II. 1 hr. Staff

280. Survey of Operatic Music. II. 3 hr. PR: Music 141. Mr. Schafer

281. Survey of Symphonic Music. I. 3 hr. PR: Music 141. Mr. Schafer

282. Studies in Contemporary Music. I. 3 hr. PR: Music 141. Mr. Schafer

283. Survey of Chamber Music. II. 3 hr. PR: Music 141. Mr. Schafer

323. Keyboard Literature. S. 3 hr. PR: Music 220. An intensive study of the literature for keyboard instruments and the history of the literature. Staff

324. Song Literature. S. 3 hr. PR: Music 220. An intensive study of the Art Song and the Lied and the history of their development. Staff

325. Choral Literature. S. 3 hr. PR: Music 220. An intensive study of the body of choral music and the history of its development. Staff

326. Music Literature Survey. I. 4 hr. PR: Music 140, 141. Intensive study of the history of music, music literature, musical documents, and the philosophies of music theory and aesthetics from Greek Antiquity up to 1750. Mr. Schafer

327. Music Literature Survey. II. 4 hr. PR: Music 140, 141. Continuation of Music 326, covering European music from 1750 to the present and music in America from Colonial times to the present. Mr. Schafer

330. Introduction to Research in Musicology. I. 3 hr. PR: Music 140-141, or equiv. A study of the field of musical research, with emphasis placed on the technic of research in music history. Staff

331. Seminar in Musicology. II. 3 hr. PR: Music 330. Musical research and investigation. Special fields of study will be selected for each term and individual projects undertaken. Course may be repeated for credit. Staff

332. Music in the Middle Ages. 3 hr. PR: Music 140-141 or equiv. and consent. A detailed study of the music and musical practice from the beginning of the Christian era to 1400. Mr. Schafer

333. Music in the Renaissance. 3 hr. PR: Music 140-141 or equiv. and consent. Continuation of Music 332 through the 16th century. Mr. Schafer

336. Music in the Baroque Period. 3 hr. PR: Music 140-141 or equiv. and consent. A detailed study of the music and musical practice of the period from 1600 to 1750. Mr. Schafer

337. Music in the Classic and Romantic Periods. 3 hr. PR: Music 140-141 or equiv. and consent. Continuation of Music 336 covering the period from 1750 to 1900. Mr. Schafer

338. History of Notation. S. 2 hr. PR: Music 140-141 or equiv. A detailed study in transcribing the musical manuscripts of the Middle Ages. Staff

339. History of Notation. S. 2 hr. PR: Music 140-141 or equiv. Continuation of Music 338, covering the Renaissance Period. Staff

Church Music

329. Survey of Sacred Music. II. 4 hr. PR: Music 140-141 or equiv. A study of music suitable to the liturgical year, including the historical background of the Jewish, Catholic, and Protestant Liturgies. Mr. English

334. Choir Seminar. I, II. 2 hr. PR: Music 184 or equiv. Development of a choir for a period of two semesters, culminating in a performance of a program of sacred music. Course may be repeated for credit; maximum credit 4 hours. Mr. English

Music Education

200. Band, Orchestra, Choral, Opera Theatre, and Music Education Clinics. 2 hr. Special problems of organization and development of the various performing organizations. Lecture, laboratory and discussion groups. Staff

201. Music in the Elementary School. I, II. 2 hr. PR: Music 10, 11, 12, or consent. Development of skills, procedures, techniques and materials used by the general classroom teacher of music in grades 1-8. Not open to music majors. (Not offered in 1964-65). Miss Scott

246. Music in the Junior High School. I. 2 hr. PR: Music 181-182 or equiv. A consideration of the potentialities and special needs of the junior high school in music education; programs, procedures and materials. Mr. Brown

340. Choral Techniques. I. 2 hr. PR: Music 181-182 or equiv. A study of advanced techniques and procedures involved in the development of ensembles. Mr. Golz

342. Instrumental Techniques. II. 2 hr. PR: Music 181-182 or equiv. A study of advanced techniques and procedures involved in individual performance and instruction through lecture-demonstrations by the applied music faculty. Staff

344. Music Education. II. 3 hr. PR: Music 181-182 or equiv. Survey and critical study of the total music education program. Mr. Brown

345. The Supervision of Music. I. 2 hr. PR: Music 181-182 or equiv. Problems in the supervision of music in the elementary grades and in junior high school. Mr. Brown

346. Introduction to Research in Music Education. I. 3 hr. PR: Music 181-182 or equiv. Discussion and independent research problems in the general field of Music Education. Research report required. Mr. Horacek

347. Music Curriculum. I. 2 hr. PR: Consent. Philosophy, objectives, and organization of the school music curriculum. Primarily intended for doctoral students in Music Education. Mr. Horacek

348. Psychology of Music Learning. II. 3 hr. PR: Music 349 or consent. The application of learning theory to music learning; the nature of musical talent; music talent testing. Mr. Horacek

349. Psychology of Music. I. 3 hr. An introductory study of musical acoustics and of perceptions of music. Mr. Horacek

350. Psychology of Music Laboratory. II. 2 hr. PR: Music 349. A laboratory and research course designed to follow Music 349. Mr. Horacek

351. Music in Society. I. 2 hr. PR: Music 141 or consent. The function throughout history of music in society; the relation between social factors and musical practice. Mr. Horacek

352. Aesthetics of Music. II. 2 hr. PR: Music 141 or consent. An examination of the main classical and contemporary aesthetic theories and their applications to music. Mr. Horacek

Opera

210. Opera Theatre. I, II. 0-2 hr. Maximum credit 8 hr. PR: Music 20 or consent. Continuation of Music 20. Performance of major roles and advanced production techniques. Qualified students will undertake production-direction projects under supervision. Mr. Golz

Theory and Composition

250. Advanced Harmony. II. 3 hr. PR: Music 4 or consent. A course in the harmonic practice of Romantic and 20th century composers. Staff

252. Analysis of Musical Form. I. 3 hr. PR: Music 4. A detailed study of the structure of music. Mr. Engberg

253. Counterpoint. I. 2 hr. PR: Music 4 or consent. Sixteenth century counterpoint. Mr. Lorince

254. Counterpoint. II. 2 hr. PR: Music 4. Eighteenth century counterpoint. Mr. Lorince

360. Composition. I, II. 3 hr. PR: Consent. A course primarily for candidates for the graduate degrees in Theory or Composition. Course may be repeated for credit; maximum credit 9 hours. Mr. Canning

365. Counterpoint. I. 2 hr. PR: Music 253. Advanced 16th century counterpoint. Mr. Lorince

366. Counterpoint. II. 2 hr. PR: Music 254. Advanced 18th century counterpoint. Mr. Lorince

367. Style Survey. I. 3 hr. PR: Music 140, 141 or equiv. An analytical study of musical styles from Gregorian chant through the 16th century. Mr. Lefkoff

368. Style Survey. II. 3 hr. PR: Music 367. An analytical study of musical styles from the 17th century to the mid-19th century. Mr. Canning

369. Research. I, II. 2 hr. PR: Music 329, 330, 346, or 367, and consent. Independent research projects in Theory, Music History, Music Education, or Church Music. Staff

370. Orchestration. I, II. 3 hr. PR: Music 118 or equiv. Major projects of orchestration. Course may be repeated for credit; maximum credit 6 hours. Mr. Canning

372. Band Arranging. II. 3 hr. PR: Music 118 or equiv. Major projects in arranging for the concert band. Mr. Udell

375. Pedagogy of Theory. I. 2 hr. PR: Music 4 and consent. Consideration of the various approaches to the teaching of theory. Mr. Lorince

376. Pedagogy of Theory. II. 2 hr. PR: Music 375. Continuation of Music 375. Mr. Lorince

381. Style Survey. S. 3 hr. PR: Music 368. An analytical study of musical styles of the late 19th century and early 20th century. Mr. Canning

382. Style Survey. S. 3 hr. PR: Music 381. An analytical study of 20th century music with emphasis on serial techniques and contemporary trends. Mr. Lefkoff

383. Remedial Theory. I, II. 0 hr. A course for graduate students who are deficient in undergraduate theory requirements. Mr. Lorince

Thesis or Recital

394. Doctoral Seminar. I, II. 4 hr. PR: Consent. Intensive individual investigation and preparation of research papers or compositions. Course may be repeated for credit; maximum credit 8 hours. Presented by the combined doctoral staff in music.

395. Dissertational Guidance. I, II. 1-8 hr. Credit not to be applied toward the 70-hour minimum for the Ph.D. or Ed.D. Staff

396. Two Lecture Recitals. 1-4 hr. For History of Music majors only. Staff

397. Recital. 2 hr. For Music Education majors only. Staff

398. Recital. 1-4 hr. PR: Music 199 or equiv. Staff

399. Thesis. 1-4 hr. Staff

EXTENSION DIVISION

288. Music Education. I. 3 hr. PR: Consent. A study of the fundamentals of music, and the procedures and materials used in teaching music in the elementary classroom. Credit for this course will satisfy only First Class Certificate renewal or an elective on a degree which permits open electives. Cannot be used to renew an emergency certificate of any type. Offered only in the University Extension Division. Not open to music majors. Staff

289. Music Education. II. 3 hr. PR: Music 288. Continuation of Music 288. Credit restrictions for this class are the same as for Music 288. Offered only in the University Extension Division. Not open to music majors. Staff

290. Choral Conducting and Procedures. I. 3 hr. PR: Consent. The organization and development of school and community choral groups with particular emphasis on conducting techniques, choral music materials, and choral teaching procedures. Offered in the University Extension Division only. For non-music majors only. Staff

291. Choral Conducting and Procedures. II. 3 hr. PR: Music 290 or consent. Continuation of Music 290. Offered in the University Extension Division only. For non-music majors only. Staff

292. History and Appreciation of Music. I. 3 hr. PR: Consent. The history and appreciation of music from the Christian era through the baroque period. Offered in the University Extension Division only. For non-music majors only. Mrs. Shehatovich

293. History and Appreciation of Music. II. 3 hr. PR: Music 292 or consent. Continuation of Music 292 including the classic, romantic and modern periods. Offered in the University Extension Division only. For non-music majors only. Mrs. Shehatovich

294. Class Piano. I. 2 hr. PR: Consent. Offered in the University Extension Division only. For non-music majors only. Mrs. Shehatovich

295. Class Piano. II. 2 hr. PR: Music 294 or consent. Offered in the University Extension Division only. For non-music majors only. Mrs. Shehatovich

The School of Physical and Health Education, Recreation, and Safety

The Division of Physical Education was established on the campus in 1928 and became the School of Physical Education and Athletics in 1937. The name was changed to The School of Physical and Health Education, Recreation, and Safety in 1960.

The objectives of the School are:

1. To conduct a general program of physical education for University students.
2. To provide professional preparation for careers in physical education, athletic coaching, recreation, health education, safety education, and pre-physical therapy.
3. To provide an intramural activities program for students and faculty.

Organization

Department of Physical Education for Men
Department of Physical Education for Women
Department of Recreation
Department of Health Education
Department of Safety Education

Facilities

The Field House, located on the Main Campus, provides facilities for classes, intramural sports, recreation activities, and intercollegiate athletics. It also contains the administrative offices of the School of Physical and Health Education, Recreation, and Safety.

Elizabeth Moore Hall, situated on the Main Campus, provides physical education, intramural, and recreation facilities for women students. It also houses the offices of the Department of Physical Education for Women.

Mountainlair, the student activities center, is located on the Main Campus and provides facilities for swimming and bowling.

Mountaineer Field is located within the stadium on the Main Campus. It has a seating capacity of 35,000. It provides facilities for intercollegiate football and track and field events.

The administrative offices of the Department of Intercollegiate Athletics are located in the stadium.

Outdoor facilities for the physical education, intramural sports, recreation, and intercollegiate athletics are located in the stadium adjacent to the Field House, and on the Evansdale Campus.

Intramurals

A broad intramural sports program for men and women is provided by the School of Physical and Health Education, Recreation, and Safety. It is the aim of the intramural program to encourage all students of the University to participate in organized athletic sports and wholesome active recreation. Competition is promoted among student groups and individuals. Groupings such as classes, fraternities, sororities, dormitories, and other nonfraternity units form the foundation for activities in competitive sports.

THE GENERAL PROGRAM FOR MEN AND WOMEN

The general program provides an opportunity for students to develop general physical efficiency, skills in sports, dance, and wholesome health and recreation attitudes. Experiences gained in the program provide a basis for participation in intramural and varsity athletics, as well as on- and off-campus recreation.

The courses are specifically designed to: (a) understand the importance of exercise, activity, relaxation, rest, and nutrition to one's physical and mental well-being, (b) understand the relationship of physical education to health, (c) develop an appreciation of the human organism (how the body can move) and the ability and capacity to control and direct these movements with skill and intelligence, (d) understand the meaning of physical fitness and create the desire to develop and maintain it, (e) develop in each student optimum physical fitness and teach skills for lifelong maintenance of physical fitness, (f) develop an appreciation of athletics, sports, and dance common to our culture and the desire to actively engage in these physical activities, and (g) provide an opportunity for students to acquire the skills essential to participate in athletics, sports, dance, and related activities.

Students satisfying the course demands meet the University requirements in Physical Education as a prerequisite for graduation. Those students who are unable to participate in the regular program because of physical handicaps are assigned to the adapted program.

This requirement should be met by the men in their first year of residence and by women in their first two years of residence. Two hours of general program are required for men and four hours for women.

GENERAL PROGRAM COURSES FOR MEN

1. General Program for Men. I. 1 hr. Required of all freshmen in the University (except majors in Physical Education). Students who are found to be physically unable to engage in regular activity will be assigned to an adapted program of physical education recommended by University physicians and under the direction of the Staff of the Department. All other students will be assigned to the regular program of physical education. These students will be grouped for instruction and organized competition in the following activities: conditioning exercises, tumbling and apparatus, wrestling, golf, swimming, and relays. Mr. Tork and Staff

2. General Program for Men. II. 1 hr. Required of all freshmen in the University (except majors in Physical Education). Students in the regular program will be grouped for organized competition in the following activities: conditioning exercises, basketball, bowling, handball, volleyball, tennis, and track and field. Mr. Tork and Staff

GENERAL PROGRAM COURSES FOR WOMEN

General Program for Women. Physical Education 3, Orientation to Physical Education, is required of all freshman women students in the fall semester.

The student should select one course from each of the following groups to complete the four-hour requirement:

Group 1—Phys. Educ. 14, 15, 16 ..... (Swimming)

Group 2—Phys. Educ. 5, 11, 17, 18 ..... (Dancing)

Group 3—Phys. Educ. 4, 7, 8, 9, 10, 13, 21, 25 (Individual or Team Sports)

3. Orientation in Physical Education. I. 1 hr. Team sports, body mechanics, and dance. Required of all freshman women.
Mrs. Beto, Miss Carruth, Miss Blakemore

4. Golf and Bowling. I, II. 1 hr. Mrs. Pearse

5. Ballroom Dance. I, II. 1 hr. Fundamentals of ballroom dancing. For men and women students. Mrs. Wiedebusch

7. Archery. I, II. 1 hr. Miss Hurst

8. Recreational Sports. I, II. 1 hr. Badminton, table tennis, deck tennis, and shuffleboard. Miss Hurst

9. Team Sports. I. 1 hr. Volleyball and hockey. Mrs. Beto

10. Team Sports. II. 1 hr. Basketball and softball. Mrs. Beto

11. Folk Dancing. I, II. 1 hr. Miss Hurst

13. Tennis and Bowling. I, II. 1 hr. Mrs. Pearse

14. Elementary Swimming and Diving. I, II. 1 hr. Miss Blakemore

15. Intermediate Swimming and Diving. I, II. 1 hr. Miss Blakemore

16. Life Saving and Water Safety. II. 1 hr. (Opportunity to qualify for American Red Cross Senior Life Saving Certificate.) Miss Blakemore

17. Elementary Modern Dance. I, II. 1 hr. Mrs. Wiedebusch

18. Advanced Modern Dance. I, II. 1 hr. PR: Phys. Educ. 17. (Open to Men and Women). Mrs. Wiedebusch

21. Physical Fitness. I, II. 1 hr. Mrs. Beto

25. Fencing. I, II. 1 hr. Mrs. Pearse

Physical Education for Elementary Teachers (*Not for P.E. Majors*)

Women students who are planning to teach in elementary grades are required to take the following courses to meet the 4-hr. requirement:

41. Physical Education for Elementary Teachers. I. 1 hr. (W).

42. Physical Education for Elementary Teachers. II. 1 hr. (W).

43. Physical Education for Elementary Teachers. I, II. 2 hr.

Men students who are planning to teach in elementary grades are required to take the following courses:

1. General Program for Men. I. 1 hr.

2. General Program for Men. II. 1 hr.

43. Physical Education for Elementary Teachers. I, II. 2 hr.

REQUIREMENTS FOR DEGREES

The degree of Bachelor of Science in Physical Education or the degree of Bachelor of Science in Recreation may be conferred upon any student who satisfies the entrance requirements and offers 128 hours with an average of "C." Candidates for Physical Education degrees must also meet certain School and departmental requirements.

By order of the Board of Governors, no degree will be conferred upon any candidate prior to payment of all tuition, fees, and other indebtedness to any unit of the University.

University Core Curriculum Requirements

All undergraduates entering the University for the first time in September, 1964, or later, must complete the University Core Curriculum Requirements in order to graduate. (See page 93).

PHYSICAL EDUCATION: REQUIRED AND ELECTIVE SUBJECTS

Of the 128 hours which are required for the degree of Bachelor of Science in Physical Education, at least 45 hours are required in the School of Physical and Health Education, Recreation, and Safety. The remaining hours must be selected from such courses as may be approved by the adviser. A candidate for a degree is advised to make a selection of one of the teaching combinations on page 12 and to complete the number of semester hours required in each teaching group.

Courses are arranged to meet University requirements for the degree of Bachelor of Science in Physical Education as well as state requirements for teacher certification. The curriculum for the four-year course has been so arranged that consideration is given to various activities which should constitute a well-rounded program of physical education for children and youth. The courses are arranged in twelve groups as follows:

A. Required activity courses in Physical Education for men: Phys. Educ. 5, 51, 52, 53, 54, 55, 56, 121, 130, 131, 132, 155, and for women: 5, 31, 32, 33, 35, 54, 61, 63, 66, 130, 131, 132.

B. Required theory courses in Physical Education for both men and women, unless otherwise indicated are: Phys. Educ. 36 (W),* 71, 155 (M),* 175, 176, 177, 180, 191, 278.

C. Required courses in Recreation: Rec. 4.

D. Required courses in Health Education: Health Educ. 2 and 101.

E. Required courses in Safety Education: Safety Educ. 127 (W) and Safety Educ. 181.

F. Required courses in English.

G. Required courses in Science which furnish a background for physical education.

H. Required courses in Education which consider the principles of general education.

I. Required courses in Social Studies.

J. Required courses in Music and Art.

K. Required courses in Military Science and Air Science for men of the University.

L. Elective courses.

*Courses marked (M) are open to men; courses marked (W) are open to women; all others are open to both men and women.

It is understood that a sound and vigorous body is essential to all students who elect this curriculum. Each student must therefore pass a thorough physical examination before he will be allowed to enroll in this program. Special emphasis is placed upon personal and professional qualifications of the student as well as upon a high standard of scholarship.

Student teaching in physical education is available in the University High School and in the elementary schools of Morgantown. Opportunity is provided also in University High School for practice coaching of high school athletic teams. Assisting in the General Program in physical education is required of all majors.

All students registered in the School of Physical and Health Education, Recreation, and Safety must successfully pass a motor ability test.

All sophomore, junior, and senior physical education majors or pre-physical therapy students, are required to complete fifteen units of field work in projects related to physical education and recreation.

Advisers

Designated members of the staff of the School of Physical and Health Education, Recreation, and Safety serve as advisers for all major students in Physical Education and Recreation.

It is the student's responsibility to know the requirements for graduation, second teaching field, and for certification. All students are urged to acquaint themselves with these regulations immediately.

Recommendation for Certification

The prospective teacher who intends to apply for certification for school service in the state should take care to satisfy requirements for other teaching fields and required courses in Education and Physical Education.

Students who are planning a teaching career must meet the certification requirements that are in effect at their first registration in teaching preparation program. Students may secure the *Teacher Certification Bulletin*, containing requirements for certification, from the College of Education. Students are urged to become familiar with these regulations during their freshman year.

Method of Computing Grade-Point Average

For teacher certification, the student shall be responsible for every registration in a course. The grade-point average shall be computed on *all* work attempted, including work attempted at the University and at other institutions of collegiate grade.

Suggested Teaching Combinations for First-class High School Certification

1. Physical education and biological science.
2. Physical education and mathematics.
3. Physical education and social studies.
4. Physical education and English.
5. Physical education and physical and general science.
6. Physical education and physical science.
7. Physical education and biological and general science.
8. Physical education and industrial arts.
9. Other combinations approved by the adviser.

Elementary Certification

The elementary curriculum will qualify a student as an elementary classroom teacher. In addition the student will meet certification requirements in physical education, English, and social studies in grades 7-8. By taking Physical Science 2 the student can also qualify to teach biological science in grades 7-8.

THE CURRICULUM FOR PHYSICAL EDUCATION MAJORS

Degree: Bachelor of Science in Physical Education

The curriculum for majors is organized to provide professional preparation for men and women who are desirous of becoming teachers of health and physical education in elementary schools, high schools, and colleges. The courses are arranged to meet the University requirements for the degree of Bachelor of Science in Physical Education, as well as the state requirements for teacher education in secondary and elementary schools.

SECONDARY

Women

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
Art 30	2	Health Educ. 2	2
P.E. 5	1	P.E. 32	1
P.E. 31	1	P.E. 33	1
P.E. 35	1	P.E. 36	2
P.E. 71	2		
	17		16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Educ. 105	3	Educ. 106	3
Soc. Sci. 1	4	Soc. Sci. 2	4
English 18	3	P.E. 54	2
Rec. 4	3	P.E. 66	1
P.E. 61	1	English 5 or 6	3
P.E. 63	1	Electives	3
Music 10	2		
	17		16

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Safety Educ. 127	2	Zool. 271	4
Safety Educ. 181	2	P.E. 131	1
Health Educ. 102	2	P.E. 132	1
P.E. 130	1	P.E. 176	2
P.E. 175	5	P.E. 177	3
Electives	4	P.E. 180	2
		Electives	4
	16		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
P.E. 191	2	P.E. 278	3
*Educ. 120) or	4	*Educ. 120) or	4
*Educ. 124)		*Educ. 124)	
elect.	6	elect.	6
*Educ. 152)	2	*Educ. 152)	2
Electives	2	Electives	2
	16		17

*Required of all students desiring certification for teaching.

Men

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
P.E. 5	1	Health Educ. 2	2
P.E. 51	2	P.E. 52	1
P.E. 71	2	P.E. 53	2
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 5 or 6	3	English 18	3
Soc. Sci. 1	4	Soc. Sci. 2	4
Music 10	2	Art 30	2
P.E. 55	2	P.E. 54	2
Rec. 4	3	P.E. 56	2
Mil. or Air Sci. 3	2	Mil. or Air Sci. 4	2
Electives	2-3	Electives	3
	18-19		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Educ. 105	3	Educ. 106	3
Health Educ. 102	2	Zool. 271	4
P.E. 121	2	P.E. 131	1
P.E. 130	1	P.E. 132	1
P.E. 155	2	P.E. 176	2
P.E. 175	5	P.E. 177	3
Safety Educ. 181	2	P.E. 180	2
		Electives	2
	17		18

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
P.E. 191	2	P.E. 278	3
*Educ. 120) or	4	*Educ. 120) or	4
*Educ. 124)		*Educ. 124)	
elect.	6	elect.	6
*Educ. 152)	2	*Educ. 152)	2
Electives	3	Electives	2
	17		17

*Required for those students desiring certification for teaching. May be taken the first or second semester of senior year.

ELEMENTARY

Women

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
Art 30	2	Health Educ. 2	2
P.E. 5	1	Math. 6	3
P.E. 31	1	P.E. 32	1
P.E. 35	1	P.E. 33	1
P.E. 71	2		
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Educ. 105	3	Educ. 106	3
Soc. Sci. 1	4	Soc. Sci. 2	4
English 18	3	English 5 or 6	3
Hist. 52	3	Hist. 53	3
Music 10	2	Art 2	2
Art 1	2	P.E. 54	2
P.E. 61	1	P.E. 66	1
	18		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Phys. Sci. 1	4	P.E. 131	1
Safety Educ 127	2	P.E. 132	1
Health Educ. 101	2	P.E. 176	2
Music 11	2	P.E. 177	3
P.E. 63	1	P.E. 180	2
P.E. 130	1	Educ. 141	3
P.E. 175	5	Music 12	2
		Speech 3 or 11	3
	17		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
P.E. 191	2	P.E. 278	3
For. 140	3	Educ. 142	3
Safety Educ. 181	2	Educ. 143	2
Lib. Sci. 203	3	Educ. 144	2
Geol. 107	3	Educ. 145	2
Hist. 150	3	Educ. 146	6
	16		18

Men

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
Mil. or Air Sci. 1	2	Mil. or Air Sci. 2	2
P.E. 5	1	Health Ed. 2	2
P.E. 51	2	P.E. 52	1
P.E. 71	2	P.E. 53	2
	17		17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 5 or 6	3	English 18	3
Soc. Sci. 1	4	Soc. Sci. 2	4
Music 10	2	Art 30	2
P.E. 55	2	P.E. 54	2
Mil. or Air Sci. 3	2	P.E. 56	2
Educ. 105	3	Mil. or Air Sci. 4	2
Lib. Sci. 203	3	Educ. 106	3
	19		18

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
P.E. 175	5	P.E. 132	1
Safety Educ. 127	2	P.E. 176	2
Music 11	2	P.E. 177	3
Art 1	2	P.E. 180	2
Hist. 52	3	Music 12	2
Hist. 150	3	Art 2	2
Math. 6	3	Hist. 53	3
		Safety Educ. 181	2
	20		17

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Phys. Sci. 1	4	P.E. 278	3
Speech 11 or 3	3	Educ. 142	3
For. 140	3	Educ. 143	2
Geol. 107	3	Educ. 144	2
Health Educ. 101	2	Educ. 145	2
Educ. 141	3	Educ. 146	6
	18		18

Recreation Minor for Physical Education Majors

For students who, in addition to preparing for physical education as a teaching field, have also the objective of preparing themselves for recreation leadership responsibilities in schools or in recreation programs sponsored by or in conjunction with school systems, a recreation minor is available. Such a minor also will add opportunities for service and increased income in summer recreation programs in communities, industries, or private agencies. Students are required to take the following courses as a minimum:

	Hr.
Rec. 11 (Nature Recreation and Camping)	3
Rec. 12 (Social Recreation)	3
Rec. 102 (Program Planning)	3
Rec. 104 (Functional Planning of Facilities)	3
Rec. 107 (Recreation Leadership and Group Work)	3
Rec. 282 (Recreation Administration)	3
	18

THE CURRICULUM FOR RECREATION MAJORS

Degree: Bachelor of Science in Recreation

The major curriculum in recreation is planned primarily to prepare for professional responsibilities in parks and recreation systems, public and private, in industries, public housing, hospitals, and similar fields.

Of the 130 hours which are required for the degree of Bachelor of Science in Recreation at least 57 hours are required in the School of Physical and Health Education, Recreation, and Safety. The remaining hours must be selected from courses approved by the adviser. It is generally advisable for those entering the recreation profession to prepare themselves in at least two recreation interest areas, by electing as many courses as possible in arts and crafts, or dramatics, or music, or nature recreation.

During the summer between the junior and senior years all Recreation majors are required to do at least eight weeks of supervised recreation leadership field work. The selected agency in which the student will do his work must be approved by the Chairman of the Department of Recreation. Arrangements will be made for agency supervision and periodic visitation by the faculty supervisor. Evaluation of reports and observations will be made with the student.

The courses are arranged in 14 groups and meet University requirements for the degree of Bachelor of Science in Recreation:

A. Required courses in Recreation (33).

B. Required courses in Physical Education (W-14) (M-13).

C. Required courses in English and Speech (12).

D. Required courses in Science including P.E. 175 (12).

E. Required courses in Social Studies (6).

F. Required courses in Education (3).

G. Required courses in Social Sciences (15).

H. Required courses in Forestry (W-3) (M-5).

I. Required courses in Health and Safety (6).

J. Required courses in Military Science or Air Science (M-8).

K. Required courses in Art, Drama and Music (10).

L. Required courses in Journalism (3).

M. One summer (at least 8 weeks) supervised field work (Rec. 145).

N. Elective courses: By advisement.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Biol. 1	4	Art 30 (W)	2
English 1	3	English 2	3
Hist. 1	3	English 5	3
Mil. or Air Sci. 1 (M)	2	Mil. or Air Sci. 2 (M)	2
P.E. 31 (W)	1	Music 10 (W)	2
P.E. 33 (W)	1	P.E. 32 (W)	1
Rec. 1	3	P.E. 52 (M)	1
Rec. 5	2	P.E. 53 (M)	2
		Rec. 11	3
		Electives	2
Women	17	Women	16
Men	17	Men	16

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Econ. 1	3	Mil. or Air Sci. 2 (M)	2
English 18	3	Music 10 (M)	2
Mil. or Air Sci. 3 (M)	2	P.E. 36 (W)	2
P.E. 35 (W)	1	P.E. 54	2
P.E. 55 (M)	2	P.E. 56 (M)	2
P.E. 61 (W)	1	P.E. 66 (W)	1
Psych. 1	3	Rec. 102	3
Rec. 12	3	Sociol. 1	3
Speech 11 (W)	3	Speech 11 (M)	3
		Speech 165 (W)	2
		Speech 166 (W)	1
		Electives (W)	2
Women	17	Women	16
Men	16	Men	17

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Ed. 105 (or Psych. 122) elect. (W)	3	Ed. 105 (or Psych. 122) elect. (M)	3
Health Educ. 102	2	For. 140	3
P.E. 130	1	Music 78	1
P.E. 175	5	P.E. 131	1
Rec. 107	3	P.E. 132	1
Safety Educ. 127	2	Rec. 104	3
Speech 165 (M)	2	Rec. 271	3
Speech 166 (M)	1	Electives (W)	4
Women	16	Women	16
Men	16	Men	15

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
For. 142 (M)	2	Pol. Sci. 120	3
Journ. 212	3	Rec. 202	3
Rec. 145	3	Sociology (200 level)	3
Rec. 282	3	Electives	6
Rec. 296	3		
Safety Ed. 181	2		
Electives	3		
Women	17	Women	15
Men	19	Men	15

Recreation majors who wish to be certified to teach physical education should take during the regular four-year period, and in whatever additional semesters are necessary, the following courses in addition to those listed in the Recreation curriculum:

Course Number and Title	*Men*	*Women*
Health Educ. 2, Personal and Community Hygiene	2	2
Phys. Ed. 63, Hockey and Volleyball		1
Phys. Ed. 71, Orientation in Physical Education	2	2
Phys. Ed. 121, Athletic Training	2	
Phys. Ed. 176, Adapted Program	2	2
Phys. Ed. 278, Administration of Physical Education	3	3
Zool. 271, Human Physiology	4	4
Education 105, 106, 109, 120, 124, 152	20	20

Recreation Minor

Those students who are majoring in fields other than physical education may elect to work for a minor in recreation. This will prepare them for leadership responsibility in various types of recreation service such as private agencies and summer programs in communities. Students majoring in Education may prepare themselves for recreation leadership in schools or in recreation programs sponsored by or in conjunction with school systems. The following courses are required for a minor in recreation:

Course Number and Title	*Hr.*
Rec. 1, Introduction to Recreation	3
Rec. 5, Arts and Crafts in Recreation	2
Rec. 11, Nature Recreation and Camping	3
Rec. 12, Social Recreation	3
Rec. 102, Program Planning	3
Rec. 107, Recreation Leadership	3
Rec. 282, Recreation Administration	3
Music 10, Music in Human Relations	2
Phys. Ed. 54, Individual and Dual Sports	2

THE CURRICULUM FOR PRE-PHYSICAL THERAPY STUDENTS

Degree: Bachelor of Science in Physical Education

The following curriculum for pre-physical therapy students is organized to meet the University requirements for the degree of Bachelor of Science in Physical Education as well as satisfying the entrance requirements to physical therapy schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

Entrance requirements to the various schools of physical therapy vary. The majority of physical therapy schools approved by the American Medical Association accept students if: (1) they have graduated from an approved school of physical education; (2) they have graduated from an approved school of nursing; or (3) they have completed two or three years of college work. Preference is given to those students who have specified credits in physics, chemistry, biology, and psychology.

FIRST YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
English 1	3	English 2	3
Biol. 1	4	Biol. 2	4
Hist. 1	3	Hist. 2	3
P.E. 3 (W)	1	Health Educ. 2	2
P.E. 5	1	P.E. 32 (W)	1
P.E. 31 (W)	1	P.E. 33 (W)	1
P.E. 35 (W)	1	P.E. 36 (W)	2
P.E. 51 (M)	2	P.E. 52 (M)	1
P.E. 71	2	P.E. 53 (M)	2
Mil. or Air Sci. 1 (M)	2	Mil. or Air Sci. 2 (M)	2
	Women 16 Men 17		Women 16 Men 17

SECOND YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Soc. Sci. 1	4	Soc. Sci. 2	4
Physics 1	4	Physics 2	4
Rec. 4	3	Art 30	2
Music 10	2	English 5 or 6	3
P.E. 55 (M)	2	P.E. 54	2
P.E. 61 (W)	1	P.E. 56 (M)	2
P.E. 63 (W)	1	P.E. 66 (W)	1
Mil. or Air Sci. 3 (M)	2	Mil. or Air Sci. 4 (M)	2
Elective* (W)	2-4	Elective* (W)	2-3
	Women 17-19 Men 17		Women 18-19 Men 19

THIRD YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Health Educ. 101 or 102	2	Zool. 271	4
Safety Educ. 181	2	Psych. 4	4
Psych. 3	4	P.E. 132	1
Safety Educ. 127 (W)	2	P.E. 176	2
P.E. 155 (M)	2	P.E. 177	3
P.E. 175	5	P.E. 180	2
Art 115	3		
	Women 18 Men 18		Women 16 Men 16

FOURTH YEAR

First Sem.	*Hr.*	*Second Sem.*	*Hr.*
Chem. 1	4	Chem. 2	4
P.E. 121 (M)	2	English 18	3
P.E. 130	1	Psych. 229	3
P.E. 191	2	P.E. 131	1
Speech 11	3	P.E. 278	3
Elective* (W)	4-8	Elective*	3
Elective* (M)	3-6		
	Women 14-18 Men 15-18		Women 17 Men 17

*Electives should be chosen in accordance with admission requirements of the physical therapy school in which the student expects to enroll. Suggested electives are: Educ. 105, 106; Foreign Language (French, German, Italian, Russian, Spanish 1 and 2); Math. 2, 3, 4; Psych 110, 116, 122, 125, 218, 222, 236; Sociol. 210, 211, 234, 235, 243; Speech 3, 75, 256; Zool. 231, 232, 233, 235, 236, 237.

CORRECTIVE THERAPY[1]

West Virginia University, through an affiliation with the Veterans Administration, prepares men and women as corrective therapists for possible employment under civil service regulations in Veterans Administration Hospitals throughout the United States.[2]

Students pursuing certification requirements for a Bachelor of Science Degree in Physical Education can obtain preparation as corrective therapists by completing 240 clock hours of clinical laboratory experience in a general, medical, surgical and/or psychiatric hospital. The laboratory experience is met by completing Physical Education 276, Residency in Corrective Therapy, a six weeks' course offered during the summer at a Veterans Hospital under the auspices of the professional staff. Room and board is provided by the supervising hospital.

Students interested in meeting the requirements for employment in the Veterans Administration as corrective therapists should indicate such an interest prior to completing their junior year. Subsequent to completing the course, those interested trainees will file application for Federal employment with the Board of Civil Service Examiners, Veterans Administration Central Office, Washington, D. C.

GRADUATE SCHOOL

The School of Physical and Health Education, Recreation, and Safety offers courses leading to the Master of Science Degree, with an emphasis in Health and Safety Education, Physical Education, or Recreation—or combinations of all three areas.

Additional information concerning graduate work in the School of Physical and Health Education, Recreation, and Safety may be obtained in the *Announcements* of the School and the *Announcements* of the Graduate School.

COURSES OF INSTRUCTION

HEALTH EDUCATION

2. Personal and Community Health. I, II. 2 hr. Those phases of healthful living which should be understood by all college students. Special emphasis on aspects of personal health. Mr. Holter

101. The Elementary School Health Program. I, II, S. 2 hr. PR: Educ. 105. A study and analysis of the health program which takes place in the school or through the efforts of school personnel; the organization, educational aspects, and personnel relationships involved in school health services, healthful school living, and health education. Required for teacher certification. Mr. Holter

102. The Secondary School Health Program. I, II, S. 2 hr. PR: Educ. 105. A study and analysis of the health program which takes place in the school or through the efforts of school personnel; the organization, educational aspects, and personnel relationships involved in school health services, healthful school living, and health education. Required for teacher certification. Mr. Holter

201. Advanced School Health. I, S. 3 hr. PR: Health Educ 101, 20 hr. of Education, or consent. An analysis of problems in school health services, healthful school living, the nature of health education, and the scope of health instruction which confronts teachers and administrators. Mr. Holter

[1]Corrective therapy is the application of the principles, techniques, and psychology of medically oriented physical education to assist the physician in the accomplishment of prescribed objectives. It is administered under the direct supervision of a physician who determines the goals and limits of the therapist's work and specifies these by prescription.

[2]Present affiliation is with the Veterans Administration Hospital, Leech Farm Road, Pittsburgh 6, Pa.

205. Philosophy of Health Education. I, S. 3 hr. PR: Health Educ. 2, and 101, or equiv. Analysis of the scientific bases, purposes, procedures, and content, with implications for school and public health education programs. Mr. Holter

301. Community Health. II, S. 3 hr. PR: Health Educ. 2, and 205, or equiv. Health problems requiring community action, basic public health activities, community organization for health protection, voluntary health agencies, school health programs and the role of state and federal agencies in the community health program. Mr. Holter and Visiting Lecturers

376. Evaluation of Health Information. I, S. 3 hr. PR: Health Educ. 2, and 201, or 20 hr. of Education and consent. Study of published material to determine basic scientific accuracy and value. Mr. Holter

394. Seminar in Health Education. I, II, S. 4 hr. PR: Health Educ. 205. An overview and critical analysis of the literature and research in health education. Mr. Holter

397. Individual Research Problems in Health Education. I, II, S. 1-4 hr. PR: Minimum of 6 sem. hr. in Health Educ., including Health Educ. 205, and HPERS* 375 or 395, or Educ. 301. Opportunity for independent study and investigation of pertinent problems. For advanced students with practical experience. Mr. Holter

398. Practicum in Health Education. I, II, S. 4 hr. PR: Health Educ. 394, and HPERS 396 and 397. Program planning, curriculum development and job functions in health education. Mr. Holter

PHYSICAL EDUCATION

Professional Curriculum

30. Beginning and Intermediate Swimming. I, II. 1 hr. (M). Instruction in the basic swimming strokes and beginning diving. All physical education and recreation majors who do not pass the swimming skill tests must register for this course. Staff

31. Team Sports. I. 1 hr. (W). Fundamentals, skills, and practice in playing soccer and basketball. Mrs. Beto

32. Team Sports. II. 1 hr. PR: Phys. Educ. 31. (W). Techniques and practice in teaching and officiating basketball. Fundamental skills and practice in softball. Mrs. Beto

33. Swimming and Diving. I. 1 hr. PR: Phys. Educ. 14 or equiv. (W). Miss Blakemore

34. Tennis and Archery. I. 1 hr. (W). Miss Hurst

35. Modern Dance Technique. I. 1 hr. (W). Mrs. Wiedebusch

36. Movement and its Rhythmic Structure. II. 2 hr. (W). PR: Phys. Educ. 35. Understanding of the nature and scope of rhythm in physical education programs. Mrs. Wiedebusch

37. Advanced Modern Dance. I, II. 1 hr. PR: Phys. Educ. 35 (W). Continuation of Phys. Educ. 35, including methods of teaching. Mrs. Wiedebusch

38. Dance Composition. II. 2 hr. PR: Phys. Educ. 35, 36 (W). Problems in force, time, and space as elements of expressive movement. Mrs. Wiedebusch

*See page 464.

†43. Physical Education for Elementary Teachers. I, S. 2 hr. PR: Phys. Educ. 1 and 2 or 41 and 42, or consent. Philosophy, objectives, identification of physical education, and a broad selection of activities adapted to the primary and intermediate levels. Laboratory work and observation in the elementary schools are required. Mr. Tork and Mrs. Wiedebusch

51. Fundamentals of Baseball and Gymnastics. I. 2 hr. (M). Mr. Bonsall and Mr. Harrick

52. Advanced Swimming, Lifesaving, and Water Safety. I, II. 1 hr. (M). PR: Phys. Educ. 30 or equiv. Theory and practice in aquatics and water safety, including American Red Cross Senior Lifesaving Certificate. Staff

53. Junior and Senior High School Activities and Games. I. 2 hr. (M). Theory and fundamentals of speedball, soccer, volleyball, touch football, archery, and games of low organization. Mr. Bonsall

54. Individual and Dual Sports. II, S. 2 hr. Theory and practice in fundamentals of badminton, bowling, golf, handball, and tennis. Mr. Semon

55. Fundamentals of Basketball and Wrestling. I. 2 hr. (M). Mr. King and Mr. Harrick

56. Fundamentals of Track and Football. II. 2 hr. (M). Mr. Romanoski and Mr. Barnette

57. Advanced Gymnastics. II. 2 hr. PR: P.E. 51 (M); P.E. 61 (W). A study of advanced skills, techniques, and teaching methods in tumbling, regular and special apparatus work and related areas of gymnastics instruction. Mr. Bonsall

61. Stunts, Tumbling, and Trampoline. II. 1 hr. (W). Mr. Bonsall

63. Hockey and Volleyball. I. 1 hr. (W). Fundamentals, skills, and practice. Miss Blakemore

66. Graded Games and Lead-up Games. II. 1 hr. Games for all ages which may be used in home, school, playground, and gymnasium, and lead-up games in various sports. Miss Hurst

68. Officiating Athletics. II. 1 hr. (W). Rules, techniques, and laboratory work. Mrs. Beto

71. Orientation in Physical Education. I. 2 hr. Purposes, scope, and possibilities in health education, physical education, recreation, and coaching in the school program. Mr. Duncan and Mr. Semon

121. Athletic Training and First Aid. I. 2 hr. (M). Lectures, demonstrations, and practice work in training and first aid in athletics. Mr. Gwynne and Mr. Donley

124. Instructorship in Swimming, Lifesaving, and Water Safety. II. 1 hr. PR: Phys. Educ. 52 or equiv. Teaching methods in swimming and water safety. Meets American Red Cross Certification Standards and course completion carries eligibility for teaching swimming, lifesaving, and water safety. Open only to students who have valid lifesaving cards. Miss Blakemore

130. Program Assisting. I. 1 hr. Miss Carruth and Mr. Tork

131. Program Assisting. II. 1 hr. Miss Carruth and Mr. Tork

132. Folk Dancing. II. 1 hr. Fundamentals and materials of folk dancing. Miss Hurst

155. Theory of Coaching. I. 2 hr. PR: Phys. Educ. 51, 55, 56. A study of coaching methods, systems, and team development in the various varsity-type sports. Mr. Barnette

†This course is required for certification for Elementary School teaching certificates.

171. Basic Rhythms and Dance Accompaniment. II. 2 hr. PR: One semester of modern dance. Understanding of the basic principles of rhythm as they relate to body movement. (Ability to play the piano is not required.) Staff

175. Anatomy and Kinesiology. I, II. 5 hr. Principles of mechanics of body movement in relation to anatomical structure. Mrs. Beto and Dr. Hesen

176. The Adapted Program in Physical Education. II. 2 hr. PR: Phys. Educ. 175. A basic course dealing with deviations from the normal and the organizing and adapting of physical education programs to meet the needs of atypical students or those with special problems. Mr. Yost

177. History and Principles of Physical Education. II. 3 hr. Development of physical education from early civilization to present time. Basic principles underlying modern programs. Miss Carruth

180. The Physical Education Program in the Elementary School. II. 2 hr. Theory, methods, techniques, and practice of activities in physical education for elementary school children. Mr. Tork

191. Introduction to Tests in Health and Physical Education. I. 2 hr. A background course in physical achievement tests. History of development; review of outstanding tests. Essential procedures used in evaluating tests and their results, including statistical analysis. Mr. Yost

206. Program in Individual Sports. S. 3 hr. PR: Phys. Educ. 51, 55, 56, 155 or equiv. Designed for coaches of interscholastic athletics. A study of advanced coaching techniques and methods in track and field activities, wrestling, and gymnastics. Messrs. Bonsall, Harrick, and Romanoski

207. Program in Team Sports. S. 3 hr. PR: Phys. Educ. 51, 55, 56, 155, or equiv. Designed for coaches of intercollegiate athletics. A study of advanced techniques, systems of play, offense, defense, methodology, staff organization, and related problems in the coaching of football, basketball, and baseball. Messrs. Barnette, Harrick, and King

208. Advanced Athletic Training and Conditioning. I, S. 3 hr. PR: Phys. Educ. 121, 175; Zool. 171, or equiv. To acquaint graduate students with recent theories, practices, and techniques in the prevention, care, and treatment of athletic injuries. Mr. Donley

209. Officiating Football and Basketball. I, S. 2 hr. Rules and techniques of officiating, officials' organizations, and laboratory work. Mr. Tork

210. Program in Sports. S. 3 hr. (W). PR: Phys. Educ. 31, 32, or equiv. Designed especially for women engaged in teaching and coaching. Organization and administration of individual, dual, and team sports. Practicum in girls' and women's sports. Miss Blakemore

211. Organization and Administration of Intramural Sports. I, S. 3 hr. PR: 4 hr. of physical education activity courses. Critical analysis with view to justification from standpoint of objectives and of contribution to general welfare of students participating. Organization and administration of programs on secondary and college levels. Mr. Semon

212. Extracurricular Physical Education Activities for Secondary School Girls. I, S. 3 hr. PR: Consent. Critical analysis of physical education extracurricular activities from the standpoint of objectives and contributions to the general welfare of the participants; value of the activities in the school and community; relationship to the physical education program; problems associated with the organization and administration of the program. Miss Blakemore

213. Administration of Athletics. S. 3 hr. PR: Experience in coaching and administration. The course is designed for persons engaged in actual coaching

and administration. A study of the problems associated with the organization and administration of interscholastic and intercollegiate athletic programs and their relationship to physical education. Mr. Barnette and Mr. Duncan

215. Rhythms and Dance. II, S. 3 hr. PR: Consent. Principles of movement, materials, and practicum in dance. Miss Hurst

219. Modern Dance Techniques and Composition. I, S. 3 hr. PR: Phys. Educ. 35 and 36 or consent. Application of scientific principles of movement; basic principles of music as related to dance movement; choreographic principles; practicum in dance movement. Principles for teaching the dance and problems involved in planning programs. Miss Wiedebusch

275. Principles and Practices of Adapted Physical Education. I, S. 3 hr. PR: Zool. 171, Phys. Educ. 175, or equiv. Principles and philosophy in building an adapted program, types of injuries, classification of students, and application of adapted exercises. Mr. Yost

278. Administration of Physical Education. II, S. 3 hr. PR: Phys. Educ. 71, 177. Modern theories in physical education and guiding principles in organization and administration of the program. Mr. Duncan

292. Physical Education in the Elementary School. I, S. 3 hr. PR: Teaching experience or consent. Philosophy, objectives, activities, equipment, utilization of space, program planning, and evaluation for a functional program in elementary school physical education. Mr. Tork

294. Philosophy of Physical Education. I, II, S. 3 hr. PR: Phys. Educ. 177 and 278 or equiv. and consent. Study of the place of physical education in education and modern living; philosophic processes in physical education; critical analysis of various problems confronting the physical educator. Miss Carruth

295. Residence in Corrective Therapy. S. 6 hr. PR: Phys. Educ. 175, 176, and selected phychology courses. An intensive 6-week course offered during the Summer under the auspices of the professional staff of a hospital. The course consists of 240 clock hours of staff lectures and practical clinical experience in corrective therapy as it is integrated in the Physical Medicine and Rehabilitation Program of a hospital. Mr. Yost and Staff of Supervising Hospital

319. History and Philosophy of the Dance. II, S. 3 hr. PR: Phys. Educ. 219 or equiv. A cultural survey of the dance as an expression of the society it represents; philosophy of the dance; the relation of dance to other art forms; dance as an educational experience and the study of the works of the outstanding artists of today. Miss Carruth

380. Curriculum Development in Physical Education. S. 3 hr. PR: Phys. Educ. 294. Application of principles of growth and development of various age groups to program planning in physical education; evaluation of activities; formulation of criteria as a basis for curriculum revision to meet changing needs in the school program. (Limited to major students.) Miss Carruth

394. Seminar in Physical Education. I, II, S. 4 hr. PR: Phys. Educ. 294. An overview and critical analysis of the literature and research in physical education. Mr. Holter

397. Individual Research Problems in Physical Education. I, II, S. 1-4 hr. PR: Minimum of 6 sem. hr. in Phys. Educ., including Phys. Educ. 294, and HPERS 375 or 395; or Educ. 301. Opportunity for independent study and investigation of pertinent problems. For advanced students with practical experience. Mr. Holter

398. Practicum in Physical Education. I, II, S. 4 hr. PR: Phys. Educ. 394, and HPERS 396 and 397. Program planning, curriculum development, and job functions in physical education. Mr. Holter

RECREATION

1. Introduction to Recreation. II. 3 hr. A framework into which the other recreation courses with all their implications will fit. History, trends, concepts, relationship to other fields; surveys of national organizations, leaders, and literature. This course is basic to all other recreation courses. Mr. Scherlacher

4. Recreation and the School. I. 3 hr. Study of basic concepts of play, recreation, leisure, and their relationship to personal and community life. Human interest areas of approach to organized programs in school recreation. Mr. Scherlacher

5. Introduction to Arts and Crafts in Recreation. I. 2 hr. Workshop course. Place of arts and crafts in recreation, their organization, and integration with other phases of recreation. Mr. Hutchison

11. Nature Recreation and Camping. II. 3 hr. Lecture and workshop. Introduction to organized camping movement including purposes, camp sites, equipment, programs and leadership. Exploration of nature recreation and its relationship to community recreation and camping programs. Mr. Hutchison

12. Social Recreation. I. 3 hr. Lecture and workshop course. Place of social recreation activities, informal dramatics and music in community center, playground, camp and school extracurricular programs. Mr. Hutchison

102. Program Planning. II. 3 hr. PR: Rec. 1. Fundamentals for general program planning; considering needs, facilities, age groups, local customs, climatic factors, etc. Planning involved in playgrounds, indoor centers, playfields, parks, hospitals, voluntary agencies, industry, and camps. Mr. Hutchison

104. Functional Planning of Recreation Facilities. II. 3 hr. Lecture and workshop. Problems and principles governing the planning for functional and the effective usage of facilities in recreation. Emphasis on playgrounds, playfields, indoor centers, parks, camps, and swimming pools. Mr. Scherlacher

107. Recreation Leadership and Group Work. I. 3 hr. Meaning of leadership, its application to the field of recreation, and analysis of techniques. Examination of social group work method and its application in recreation particularly in national youth organizations. Mr. Hutchison

145. Field Work. 3 hr. Recreation majors are required to have at least 8 weeks of supervised recreation leadership field work. Usually during summer following junior year. Arrangements under the direction of adviser. Mr. Scherlacher

202. Philosophy of Recreation. II, S. 3 hr. PR: Major students in recreation, graduate students in Education and Physical Education; or consent. Interpretation of recreation as a basic part of the living process; importance to individual community, and national welfare; social and economic significance. Mr. Scherlacher

204. Recreation Hobbies. I, S. 2 hr. PR: Rec. 1 or equiv. Lecture and workshop. Value of hobbies to youth and adults; participation in various types of hobbies; methods of organization and presentation; nature and scope. Mr. Hutchison

206. Social Recreation for School-Age Groups. II. S. 3 hr. PR: 12 hr. in Education or consent. Workshop course. Planning and conduct of social activities, parties, picnics, special events and other recreation experience adapted to home, church, school, and community. Mr. Hutchison

265. Leisure and Recreation. I, S. 3 hr. PR: Physical Education and Recreation majors or 14 hr. in Education or consent. Study of leisure as a social phenomenon in our modern culture and its implications for recreation. Mr. Scherlacher

271. Administration of Camps and Preparation of Camp Counselors. II, S. 3 hr. PR: Rec. 11 or equiv. or consent. Principles involved in modern camping programs; organization and administration of camps. Mr. Hutchison

282. Administration of Recreation. I, S. 3 hr. PR: Major in recreation, graduate status in Education or Physical Education, or consent. General principles of administration; organization of staff administrative procedures. Study of enabling laws, legal responsibilities, surveys, finance, programs, facilities, and public relations. Mr. Scherlacher

294. Recreation Leadership in Groups. II, S. 2 hr. PR: 5 hr. general and educational psychology, or at least one year of leadership experience with teen-age children, or consent. For those working in voluntary agencies such as Y.M.C.A., Boy Scouts, Girl Scouts, etc. Also for those responsible for special-interest groups in extracurricular activities. Mr. Scherlacher

295. Leadership in Nature Recreation. II, S. 2 hr. PR: 5 hr. in biology, botany, or zoology, or combination; Rec. 1, 3, or equiv., and at least one year of leadership experience with teen-age children. For recreation leaders, camp counselors, and teachers who work with school-age children in camps or in special-interest groups. Mr. Scherlacher

296. American Folk Dance. I, S. 3 hr. PR: Phys Educ. 132 or equiv. Study of American Square, contra, circle, and round dances and play party games, and their place in community and school recreation programs. Their origin and relationship to the arts and other aspects of American culture. Analysis of techniques in leading and calling. Mr. Scherlacher

305. Human Interest Areas in Recreation Planning. I, II, S. 3 hr. PR: Rec. 202 or 20 hr. in Education or equiv. Exploration of the human interest areas which are the sources of recreation program content. Their adaptation to school and municipal recreation program planning.
Mr. Scherlacher and Visiting Instructors

306. Leadership in School-Age Recreation Programs. II, S. 2 hr. PR: Rec. 107 or two years' teaching experience. Leadership techniques used in various recreation activities of school-age groups. Analysis of differences between teaching and recreation leadership. Mr. Hutchison

307. Community Recreation. I, S. 3 hr. PR: Rec. 202 or consent. A study of problems related to the provision of adequate recreation service for a community. Standards and quality of recreation service; methods of measuring existing services and their coordination; and community organization procedures. Course is designed for leaders in voluntary agencies, schools, churches, and municipal recreation organizations.
Mr. Scherlacher and Visiting Instructors

394. Seminar in Recreation. I, II, S. 4 hr. PR: Rec. 202. An overview and critical analysis of the literature and research in recreation. Mr. Scherlacher

397. Individual Research Problems in Recreation. I, II, S. 1-4 hr. PR: Minimum of 6 sem. hr. in Recreation, including Rec. 202 or 265; HPERS 375 or 395, or Educ. 301. Opportunity for independent study and investigation of pertinent problems. For advanced students with practical experience.
Mr. Scherlacher

398. Practicum in Recreation. I, II, S. 4 hr. PR: Rec. 394, HPERS 396 and 397. Program planning, curriculum development, and job functions in recreation. Mr. Scherlacher

SAFETY EDUCATION

127. Accident Prevention and First Aid. I, S. 2 hr. Standard and advanced first aid as outlined by the American Red Cross. Miss Hurst

181. Principles of Safety Education. I. 2 hr. An introductory course. Basic principles of safety education and accident prevention. Deals with the development of the safety movement and its place in education. Mr. Maurice

182. Techniques and Procedures in Driver and Traffic Safety Education. II, S. 3 hr. PR: Safety Educ. 181 or equiv., or 6 hr. of Education and valid

driver's license. A basic course designed to prepare teachers of driver education; includes supervised practice-driving-instruction (laboratory arranged). Mr. Maurice

280. Programs in Safety Education. I, II, S. 3 hr. PR: Consent. Planning programs, methods and materials for offering instructional programs in safe living in school, home, travel, industry, physical education, athletics, and recreation. Mr. Yost

281. Driver and Traffic Safety Education Programs. II, S. 3 hr. PR: Safety Educ. 280 or equiv., or 20 hr. of Education. Philosophy, objectives, new and advanced equipment, methods and materials in driver and traffic safety education; program planning, and evaluative techniques in schools and adult programs. Includes laboratory with various methods, materials, and instructional techniques. Mr. Maurice

282. Problems in Driver and Traffic Safety Education. I, II, S. 3 hr. PR: Safety Educ. 281 or equiv. or teaching experience in driver education. An advanced course which gives consideration to individual problems encountered in teaching driver and traffic safety education. Examination of existing courses of study, research and supervisory and evaluative practices. Mr. Maurice

283. Philosophy of Safety Education. I, II, S. 3 hr. PR: Safety Educ. 280, 281, or 20 hr. of Education. Study of the place of safety education in modern living; philosophies of safety education as expounded by leaders in the field; emphasis on accident causation and accident prevention in various areas of safety; and research implications. Mr. Yost

365. Organization, Administration, and Supervision of School Safety Education. I, II, S. 3 hr. PR: 20 hr. of Education or Safety Educ. 280 or 283 or equiv., and consent. Designed for teachers, school administrators, college instructors, and others responsible for directing or supervising safety programs in the school. Deals with the problems, policies, practices, and procedures involved in the organization, administration, and supervision of a comprehensive accident prevention and safety education program for the school. Considers integration factors of the school safety program with the community safety program. Mr. Yost

394. Seminar in Safety Education. I, II, S. 4 hr. PR: Safety Educ. 283. An overview and critical analysis of the literature and research in safety education. Mr. Yost

397. Individual Research Problems in Safety Education. I, II, S. 1-4 hr. PR: Minimum of 6 sem. hr. in Safety Educ., including Safety Educ. 283, HPERS 375 or 395, or Educ. 301. Opportunity for independent study and investigation of pertinent problems. For advanced students with practical experience. Mr. Yost

398. Practicum in Safety Education. I, II, S. 4 hr. PR: Safety Educ. 394, and HPERS 396 and 397. Program planning, curriculum development, and job functions in safety education. Mr. Yost

HPERS

HPERS courses involve all areas — Health Education, Physical Education, Recreation, and Safety Education.

200. Workshop. 1-6 hr.
   I. Health Education
   II. Physical Education
   III. Recreation
   IV. Safety Education Staff

201. Seminar of Foreign Programs in Health, Physical Education, Recreation and Safety. S. 2-6 hr. PR: Consent. Study of health, physical edu-

cation, recreation, athletics, and safety programs as they exist in the countries visited will be made in terms of philosophy, program content, facilities, administration. This course is designed for administrators and teachers. Staff

301. The Role of the School Administrator in Conducting Programs in Health, Physical Education, Recreation, and Safety. S. 2 hr. PR: 20 hr. in Education. A seminar for school administrators on the solution of problems associated with planning, scheduling and conducting school programs in health, physical education, recreation, and safety. Consideration is given to program, activity, leadership, facilities, supplies, equipment, finances, and supervision. (Not open to major students.) Mr. Duncan

350. Measurement in Health, Physical Education and Safety. II, S. 3 hr. PR: Health Educ. 205 or Phys. Educ. 294 or Safety Educ. 283. An analysis of the construction and use of typical tests in Health Education, Physical Education, and Safety Education with basic statistical interpretations. Mr. Holter

352. Statistical Analysis in Health, Physical Education, Recreation, and Safety. II, S. 3 hr. PR: HPERS 350. A critical statistical analysis of measurement and evaluation in Health, Physical Education, Recreation, and Safety Education programming and research. Mr. Holter

355. Problems in Health, Physical Education, Recreation, and Safety. I, S. 3 hr. PR: Health Educ. 205 or Phys. Educ. 294 or Rec. 202 or Safety Educ. 283. Content and relationships among physical education, health education, recreation, and safety programs. Aims to develop critical analysis. Follows seminar procedure and presupposes broad academic experience on part of the student. Mr. Holter

375. Introduction to Research. II, S. 3 hr. PR: Health Educ. 205 or Phys. Educ. 294 or Rec. 202 or Safety Educ. 283. An analysis of the nature and purpose of research with an emphasis upon types and techniques applicable to the areas of health, physical education, recreation, and safety. (Required of all Master of Science degree candidates.) Mr. Holter

395. Research Seminar. II, S. 3 hr. PR: Health Educ. 394 or Phys. Educ. 394 or Rec. 394 or Safety Educ. 394 and HPERS 375 or Educ. 301. Analysis of research design, compilation, organization, treatment and interpretation of data for research projects in health, physical education, recreation and safety. (Required of all candidates for the Doctoral Degree.) Mr. Holter

395. Administrative Policies. I, II, S. 3 hr. PR: Health Educ. 394 or Phys. Educ. 394 or Rec. 394 or Safety Educ. 394, and Educ. 339 or Educ. 340. A study and evaluation of administrative policies and practices in health education, physical education, recreation, safety education, and athletics. Mr. Duncan

397. Supervision. I, II, S. 3 hr. PR: HPERS 396 and Educ. 336 or Educ. 335 or Educ. 341. A study and evaluation of supervisory policies, practices, and techniques in health education, physical education, recreation, safety education. Mr. Duncan

399. Thesis. I, II, S. 6 hr. PR: HPERS 375 or 395. Staff

Part IV

THE STAFF

The first date following titles indicates the most recent appointment. The second date indicates year of first appointment to a University position. Staff members whose names are followed by an asterisk (*) are employed in cooperation with the United States Department of Agriculture.

EILEEN LEANORA ABDONEY, B.S., *Senior Medical Technician* (1960). (Resigned April 30, 1963).

KAZUO ABE, M.D., *Resident in Pathology* (1962).

MARGUERITE E. ABEL, B.A., B.S.L.S., *Assistant Librarian* (part-time), *Medical Center Library* (1963), 1960.

RICHARD ATKINS ACKERMAN, B.S., M.S. *Assistant Professor of Dairy Science; Assistant Dairy Scientist, Agricultural Experiment Station* (1946), 1928.

ERNEST LEE ACKISS, B.A., *Assistant Professor of Military Science* (1963).

JOHN ANTHONY ADAMS, B.S., *Instructor* (part-time) *in Mechanical Engineering* (1963).

JOHN DAVIS ADAMS, B.S., D.D.S., *Professor and Chairman of Crown and Bridge Dentistry* (1958).

ROBERT EVANS ADAMS, B.S., PH.D., *Associate Professor of Plant Pathology; Associate Plant Pathologist, Agricultural Experiment Station* (1960), 1953.

CAMILLO ANTHONY ALBERICO, M.S., D.D.S., *Assistant Professor of Oral Diagnosis* (1963).

MARGARET JORALEMON ALBRINK, B.A., M.S., M.D., M.P.H., *Associate Professor of Medicine* (1961).

WILHELM STOCKMAN ALBRINK, B.A., PH.D., M.D., *Professor and Chairman of Pathology* (1961).

EDWARD EUGENE ALEXANDER, A.B., *Industrial Relations Officer* (1963). (Deceased October 28, 1963).

LILLIAN FRANCES ALFRED, B.S., M.S., *Instructor in Chemistry* (1961).

HOWARD BUSHNELL ALLEN, B.S., M.S., PH.D., *Professor Emeritus of Education; Associate Secretary, West Virginia School Boards Association* (1963), 1920.

PAUL ARLINGTON ALLEN,* B.S.AGR., *County Agent, Cooperative Extension Service* (1954), 1951.

VANCE QUENTIN ALVIS, B.S., M.A., PH.D., *Professor of Economics* (1960), 1956.

NELLE PERREL AMMONS, A.B., M.A., PH.D., *Professor Emeritus of Botany* (1959), 1920.

HAROLD IRVIN AMORY, M.D., *Professor and Chairman of Radiology* (1960).

ALTON JOHNSON ANDERSON,* B.S.AGR., *County Agent, Cooperative Extension Service* (1953).

GERALD CLIFTON ANDERSON, B.S., M.S., PH.D., *Professor of Animal Science; Animal Husbandman, Agricultural Experiment Station* (1960), 1950.

JAMES TREAT ANDERSON, B.S.M.E., M.S.M.E., D.I.C., PH.D., *Professor and Chairman of Mechanical Engineering* (1960). (Resigned June 30, 1963).

ROLAND CARL ANDERSON, B.A.N.E., M.S., *Instructor in Aerospace Engineering* (1962). (Resigned January 15, 1963).

WILLIAM EVAN ANDERSON, A.B., M.D., *Assistant Professor of Medicine* (1961), 1960.

CHARLES EDWARD ANDREWS, M.D., *Professor of Medicine* (1960).

VICENTE ANIDO, M.D., *Assistant Director of Clinical Laboratories, University Hospital* (1963).

EVANGELOS K. APOSTOLOU, M.D., *Resident in Medicine* (1962).

CHESTER ABBO ARENTS, P.E., B.S.E.E., M.S.M.E., M.E., *Dean, College of Engineering* (1955); *Director of Engineering Experiment Station* (1963).

PAUL VERNON ARMBRESTER, B.S., M.S., *Assistant Professor and Lecturer in Extension Methods and Animal Production, Arapai Farm Institute, Soroti, Uganda, East Africa* (1963).

WALTER WARDLAW ARMENTROUT, B.S.AGR., M.S., PH.D., *Professor of Agricultural Economics and Rural Sociology; Agricultural Economist, Agricultural Experiment Station* (1936), 1924. (Deceased May 17, 1964).

BARBARA ARMSTRONG, B.S., M.S., *Instructor in Home Economics* (1962).

CHARLES DALE ARMSTRONG, A.B., M.A., *Instructor* (part-time) *in Mathematics, Parkersburg Branch* (1961). (Resigned September 1, 1963).

WILLIAM HENRY ARMSTRONG, B.S., M.S., *Associate Professor of Industrial Engineering* (retired) (1962), 1957.

NEOMA S. ASH,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1961).

MARY ROGERS ASHBURN, A.B., M.A., *Instructor in English* (1959), 1946.

THELMA G. ATKESON, B.A., M.S.S.W., *Director, Social Service Department, University Hospital* (1962), 1961.

PAUL ALEXANDER ATKINS, B.S.J., M.A., *Associate Professor of Journalism; Faculty Adviser, Daily Athenaeum* (1961), 1953.

JO MATHER AULL, *Instructor* (part-time) *in Art* (1945).

ANDREW KOLB AULT, B.S., M.ED., *Instructor in Education* (1961), 1952.

GLADYS RABER AYERSMAN, B.S.H.E., M.S., *Assistant Professor of Home Economics* (1954), 1943.

ROBERT MCCORMICK BABER,* B.S.AGR., *County Agent, Cooperative Extension Service* (1961), 1959.

RAPHAEL OTTO BACHMANN, B.S., PH.D., *Dean, School of Pharmacy; Professor of Pharmaceutical Chemistry* (1961).

CHARLES H. BAER, B.S., M.SC., PH.D., *Assistant Professor of Biology* (1961), 1948.

WESLEY MARVIN BAGBY, A.B., M.A., PH.D., *Associate Professor of History* (1962), 1956.

BENJAMIN HASTING BAILEY, A.B., M.ED., ED.D., *Associate Professor of Education* (1962), 1959.

HELEN L. BAISDEN, A.B., *Instructor in Home Economics* (1963), 1961. (Resigned May 31, 1963).

WAYNE GARDNER BAKER, M.A., *Teacher, University High School* (1963).

WILFORD HARMON BAKER, B.S.C.E., M.S.C.E., *Professor of Civil Engineering* (1955), 1941.

ROBERT DODGE BALDWIN, A.B., A.M., PH.D., *Professor Emeritus of Education; Executive Secretary, West Virginia School Boards Association* (1962), 1931.

RALPH OWEN BALLENTINE, B.S., *Assistant Superintendent of Maintenance, Physical Plant, Medical Center* (1962).

JIMMY PIROSHAW BALSARA, B.E., M.S., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1963).

ETHEL HENRY BANKS,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1951).

DAVID FRANKLIN BARBE, B.S.E.E., *Instructor in Electrical Engineering* (1963), 1962.

EDWIN CLYDE BARBE, B.S.E.E., M.S.E.E., *Assistant Professor of Electrical Engineering* (1959), 1956.

RUTH BARLOW, A.B., M.A., *Instructor in English* (1963).

RICHARD HALL BARNARD, B.S.CH.E., M.S.CH.E., PH.D., *Assistant Professor of Mathematics, Parkersburg Branch* (1961), 1957. (Resigned January 15, 1963).

ALICE ELIZABETH BARNETT, B.S., M.S., *Instructor in Biology* (1960), 1959.

HORACE LESLIE BARNETT, A.B., M.S., PH.D., *Professor of Mycology; Chairman of Plant Pathology, Bacteriology and Entomology; Mycologist, Agricultural Experiment Station* (1960), 1945.

WILLIAM LEE BARNETT, B.A., M.A., *Instructor in Speech; Director of Debate* (1962), 1961.

GILBERT VEON BARNETT,* B.S., *County Agent, Cooperative Extension Service* (1957).

W. QUENTIN BARNETT, B.S., M.A., *Assistant Professor of Physical Education; Freshman Basketball Coach* (1958), 1950.

WILLIAM DERRICK BARNS, A.B., M.A., PH.D., *Associate Professor of History* (1954), 1940.

Alfred Lowell Barr, B.S.Agr., M.S.Agr., Ph.D., *Associate Professor of Agricultural Economics and Rural Sociology; Associate Agricultural Economist, Agricultural Experiment Station* (1961).

Lillian E. Barr,* A.B., *County 4-H Agent, Cooperative Extension Service* (1957).

Joseph George Barrat,* B.S., M.S., Ph.D., *State Extension Spray Specialist, Cooperative Extension Service* (1958).

Edgar Overton Barrett, A.B., *Publicity Director, Intercollegiate Athletics* (1956), 1951.

Elizabeth Ann Bartholomew, A.B., M.S., *Curator, Herbarium; Instructor in Biology* (1963), 1938.

Mildred Mitchell Bateman, B.S., M.D., *Lecturer* (part-time) *in Social Work* (1957).

Alice Lee Bauer, A.B., B.S.L.S., *Chief Technical Processes Librarian* (1954).

Newton Moore Baughman, B.S., M.S., Ph.D., *Professor of Agronomy; Agronomist, Agricultural Experiment Station; Coordinator, East African Agricultural Program* (1963), 1949.

Mary Catherine Bayles, A.B., A.M., *Assistant Registrar* (1946), 1924.

Michel Joseph Beauchemin, Ed.B., M.A., *Instructor in Romance Languages* (1956).

Barbara Rae Behrens,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1959).

Laddie Reed Bell, A.B., M.A., D.Ed., *Associate Professor of Education* (1962).

Waldo E. Bell,* B.S.Agr.Eng., *State Extension Agricultural Engineering Specialist, Cooperative Extension Service* (1945).

Donald Lee Bellia, B.S.A.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962). (Resigned January 15, 1963).

Geraldine Carpenter Belmear,* B.S., M.S., *Area Extension Home Demonstration Agent, Cooperative Extension Service* (1962), 1949.

Glenn Delmar Bengtson, B.S., *Associate Agricultural Experiment Station Editor* (1963), 1953. (Resigned October 31, 1963).

Carroll G. Bennett, M.S., D.D.S., *Assistant Professor of Pedodontics* (1963), 1962.

Charles Edward Bennett, Jr., A.B., D.D.S., *Instructor* (part-time) *in Operative Dentistry* (1962). (Resigned July 31, 1963).

Herald D. Bennett, Ph.D., *Professor of Biology* (1955), 1948.

Jonathan McCauley Bennett, *Chief Flight Instructor in Aerospace Engineering* (1951).

Arnold Benson, B.A., M.A., *Instructor in Biology* (1960), 1959.

Dorothy Jean Benson, B.S.H.E., M.S.H.E., *Dietitian, Men's Dining Hall* (1953).

Moncelle Lorraine Berg,* B.S., M.A., *County Agent, Cooperative Extension Service* (1959), 1957.

Gordon Alger Bergy, Ph.C., B.S., M.S., *Professor Emeritus of Pharmacy* (1960), 1916. (Retired May 30, 1960).

Joy Underwood Berkley, B.S.Ed., M.A., *Instructor in English* (1962), 1960.

Howard Phillip Berthy,* B.S.F., M.S., *State Extension Forestry Specialist, Cooperative Extension Service* (1953), 1950.

Charity White Beto, A.B., M.S., *Associate Professor of Physical Education* (1957), 1946.

William Robert Biddington, D.D.S., *Professor and Chairman of Endodontics* (1959).

Robert Lee Birch, B.S., M.S., *Instructor in Biology* (1948).

Victor Edgar Bird, B.S., D.D.S., *Instructor* (part-time) *in Oral Surgery* (1959). (Resigned August 31, 1963).

Carter Richard Bishop, A.B., M.A., Ph.D., *Professor of English* (1953), 1929.

J. Temple Black, B.S.I.E., M.S.I.E., *Instructor in Industrial Engineering* (1960).

Kittie Jean Blakemore, B.S.Ed., M.S., *Instructor in Physical Education* (1960).

Charles William Blissitt, B.S., Ph.D., *Assistant Professor of Pharmacy* (1958).

Ruth Naomi Blodgett, A.B., B.S.L.S., *Documents Librarian,* (1951), 1932.

Byron M. Bloor, B.S., M.D., *Professor of Surgery; Chairman of Neurosurgery* (1962), 1960.

Don Houston Blount, A.B., M.A., Ph.D., *Assistant Professor of Physiology* (1961).

DEAN EDWARD BLUMAN, P.E., B.A., B.S.M.E., M.S., *Instructor in Mechanical Engineering* (1962).
SALLIE SHREWSBURY BOARD, A.M., *Instructor in English* (1945).
LORISE CAROLINE BOGER, B.A., M.S., *Senior Reference Librarian* (1959), 1957.
JOHN CARNEY BOGGESS,* B.S.AGR., *County Agent, Cooperative Extension Service* (1927).
WILLIAM FRANKLIN BOGGESS, A.B., *Assistant Professor of Ancient and Classical Languages* (1962).
EARL RUFFNER BOGGS, A.B., M.A., PH.D., PE.D., *Dean, College of Education; Professor of Education* (1960).
NEIL E. BOLYARD, B.S., M.A., *Scholarships and Veterans' Coordinator* (1963).
EVELYN LAZENBY BONAR, A.B., M.A., *Instructor in English* (1958).
SAMUEL GEORGE BONASSO, B.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1962).
DONOVAN HINER BOND, B.S.J., M.A., *Director of Development; Professor of Journalism* (1959), 1946.
HUBERT BARCLAY BONDURANT, A.B., M.A., *Instructor in English* (1962).
BARBARA JUNE BONFILI, B.S., *Junior Catalogue Librarian* (1961).
DALE THOMAS BONNETT,* B.S., *County Agent, Cooperative Extension Service* (1955).
WILLIAM ALFRED BONSALL, B.S., M.S., *Assistant Professor of Physical Education; Gymnastics Coach* (1958), 1950.
GEORGE PAUL BOOMSLITER, M.S.C.E., *Professor Emeritus of Mechanics* (1949), 1920.
KENNETH RAY BOORD,* *State Extension News Editor* (retired), *Cooperative Extension Service* (1962), 1943.
WINIFRED MARIE BOOTH, B.S., M.A., *Assistant to the Dean and Lecturer in Education* (1948), 1930.
FRANCIS THOMAS BORKOWSKI, B.S., M.M., *Assistant Professor of Music; Director of Bands* (1962), 1961.
KAY KAISER BORKOWSKI, B.M., *Instructor* (part-time) *in Music* (1963).
JENNIE DELAWDER BOUGHNER, A.B., *Extension Assistant* (retired), *Library* (1958), 1915.
HERMAN M. BOWERS,* B.S.AGR., *Assistant Director of Cooperative Extension Service* (1951), 1929.
KARL DOUGLAS BOWERS, JR., M.D., *Resident in Surgery, Second Year* (1963), 1962.
JOANNE WALKER BOWIE,* A.B., *State Extension 4-H and Home Economics Editor, Cooperative Extension Service* (1959).
NORVIN LEE BOWYER,* B.S.AGR.ED., M.S.AGR.ED., *County Agent, Cooperative Extension Service* (1954).
BETTY BOYD, A.B., *Dean of Women* (1955), 1948.
OLGA LEMOYNE BOYD, *Staff Assistant, Placement Service* (1963).
SAM BOYD, JR., B.F.A., M.F.A., *Professor of Speech; Director of Drama; University Marshal* (1959), 1943.
FRED E. BOYERS, B.S., D.D.S., *Associate Professor of Prosthodontics I* (1963), 1957.
HAROLD HENRY BOYERS, D.D.S., *Associate Professor of Operative Dentistry and Oral Anatomy* (1963), 1958.
WILLIAM ROBERT BOYLE, B.S., M.S.N.E., *Instructor in Chemical Engineering; Nuclear Research Engineer, Engineering Experiment Station* (1962), 1960.
CHARLES BURTON BOYLES, B.S., M.S., *Instructor in Animal Science and Superintendent of Department Farms, Agricultural Experiment Station* (1963), 1954.
W. NEWMAN BRADSHAW, B.A., M.A., PH.D., *Assistant Professor of Biology* (1962).
ALLAN JAMES BRAFF, A.B., M.B.A., PH.D., *Assistant Professor of Economics* (1959). (Resigned June 1, 1963).
MILDRED PETERS BRAIN, A.B., M.A.L.S., *Chief Audio-Visual Aids Librarian* (1958). (Resigned July 31, 1963).
VIOLET REED BRANDON,* A.B., *County 4-H Agent, Cooperative Extension Service* (1954), 1942.
ARLEN RAY BRANNON,* B.S., *County 4-H Agent, Cooperative Extension Service* (1954).
GLENELLYN SWEENEY BRAUN, B.S., *Teacher* (part-time), *University High School* (1963).

ARTHUR BARTON BRAUNER, B.S., M.W.T., *Instructor in Forestry* (1963).
JAMES PAUL BRAWNER, A.B., A.M., PH.D., *Professor and Chairman of English* (1952), 1935.
THOMAS JOHN BRENNAN, B.S.ED., M.A.ED., ED.D., *Professor of Education and Coordinator of Industrial Relations* (1962), 1941.
ANNA BROCHICK, A.B., M.A., *Instructor in Education; Teacher, University High School* (1938).
SARA ELIZABETH BROCK, B.S., M.S., *Instructor in Education; Teacher, University High School* (1961).
MAURICE GRAHAM BROOKS, A.B., M.S., *Professor of Wildlife Management; Forester, Agricultural Experiment Station* (1947), 1923.
ANNA LEE BROWN,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1963).
CLIFFORD WOODROW BROWN, B.S., M.F.A., *Professor of Music and Chairman of Music Education; Professor of Education* (1962), 1942.
EMMETT FRANCIS BROWN, B.S., D.D.S., *Assistant Professor of Oral Diagnosis; Practice Administration, School of Dentistry* (1962), 1960.
GEORGE SAMUEL BROWN, A.B., M.S., *Coordinator of Rehabilitation Counseling* (1960).
JAMES HAROLD BROWN, B.S., M.F., *Assistant Professor of Silviculture; Assistant Silviculturist, Agricultural Experiment Station* (1961), 1957.
LONDO HENDERSON BROWN, A.B., LL.B., LL.M., *Professor of Law; Consultant to Comptroller's Office* (1961), 1950.
ROBERT NATHAN BROWN, A.B., *Director of Intercollegiate Athletics; Assistant Professor of Physical Education* (1954), 1950.
SARA ANN BROWN, B.S., M.S., PH.D., *Professor of Home Economics Education* (1955), 1946.
ALLEN ROY BRYANT, B.S., M.S., *Instructor in Education; Teacher, University High School* (1956).
ARTHUR CHARLES BUCK, B.A., M.A., *Sergeant Major in Air Science* (1961).
OKLEY BERT BUCKLEN, B.S., *Project Research Engineer, Coal Research Bureau, School of Mines* (1963).
CLIFFORD K. BUCKLEW,* B.S., *County 4-H Agent, Cooperative Extension Service* (1957).
TODD H. BULLARD, B.A., M.A., *Resident Director, Parkersburg Branch; Assistant Professor of Political Science, Parkersburg Branch* (1961), 1956. (Resigned September 1, 1963).
ROBERT ADRIAN BUMPAS, *Photographer, Visual Education Service* (1962).
JERRY CAMERON BURCHINAL, B.S.C.E., M.S.C.E., *Professor of Civil Engineering* (1962), 1946.
ARTHUR EDGAR BURFORD, A.B., M.S., PH.D., *Associate Professor of Geology* (1963), 1960.
OTHMAR JOSEPH BURGER, B.S., M.S., PH.D., *Assistant Dean, College of Agriculture, Forestry and Home Economics; Director of Resident Instruction, Division of Agriculture; Professor of Agronomy* (1959), 1950.
FREDA BELLE BURKE,* A.B., *County 4-H and Home Demonstration Agent* (1950).
WILLIAM T. BURKE, JR., B.A., PH.D., *Associate Professor of Biochemistry* (1961), 1960.
ROBERT EARLE BURNEY, JR., M.D., *Neurosurgical Resident, Third Year* (1963).
ROBERT G. BURRELL, B.S., M.S., PH.D., *Assistant Professor of Microbiology* (1961).
BARBARA SHIELDS BURROWS, B.A., M.ED., *Staff Assistant* (part-time), *Medical Center Library* (1963), 1959.
ROBERT BARKER BURROWS, B.A., M.A., PH.D., *Associate Professor of Speech* (1948).
HARLEY ALVIN BURTON,* B.S.AGR., *County Agent, Cooperative Extension Service* (1931).
MARY CATHERINE BUSWELL, B.A., M.A., *Assistant Professor of English* (1960), 1947.
BROOKLEY RUSH BUTCHER,* B.S., *County 4-H Agent, Cooperative Extension Service* (1951).
RELLA LINGER BUTCHER,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1942).

ROY LOVELL BUTCHER, B.S., M.S., PH.D., *Instructor in Obstetrics and Gynecology* (1962).

RUSSELL CLARKE BUTLER, B.S.AGR., M.S., PH.D., *Professor and Chairman of Agricultural Education; Professor of Education* (1956), 1944.

GEORGE WILLIAM BUTZ, JR., B.S., M.D., *Resident in Radiology, Third Year* (1962), 1961.

EDWARD FORD BYARS, P.E., B.M.E., M.C.E., PH.D., *Professor and Chairman of Theoretical and Applied Mechanics* (1960).

JANET DUFFIELD CALLAHAN, B.S., *Teacher and Librarian, University High School* (1960).

MARGARET ANN CALLISON,* A.B., *County Home Demonstration Agent, Cooperative Extension Service* (1958).

GEORGE G. CAMPBELL, B.S.E.M., M.S.E.M., *Petroleum Research Engineer, Engineering Experiment Station* (1956). (Resigned December 31, 1962).

JOHN LLOYD CAMPBELL, M.S., D.D.S., *Professor and Chairman of Oral Surgery;* (1960).

THOMAS CORWITH CAMPBELL, JR., A.B., M.A., PH.D., *Professor of Economics and Dean, College of Commerce* (1964), 1948.

WILLIAM JAMES CANADY, B.S., M.S., PH.D., *Associate Professor of Biochemistry* (1962), 1958.

ALBERT G. CANARIS, PH.D., *Associate Professor of Zoology,* (Assigned to Egerton College, Kenya, East Africa, through contract with West Virginia University) (1962).

THOMAS SCRIBNER CANNING, B.M., M.M., *Associate Professor of Music* (1963).

ODILIE CANTILLANO Y VIVES, B.A., M.A., *Instructor in Spanish* (1959).

HELEN JEAN CAPP, R.N., *Supervisor, Psychiatric and Metabolic Nursing* (1961).

LEO CARLIN, A.B., LL.B., *Professor Emeritus of Law* (1955), 1916.

LORNA DOONE CARLIN, A.B., M.S., *Instructor in Mathematics* (1955), 1943.

PATRICK A. CARONE, B.A., M.A., *Instructor in Political Science* (1960).

JAMES FRANKLIN CARRUTH, B.S., M.S., PH.D., *Associate Professor of Psychology; Chief of Student Counseling Services* (1957), 1953.

WINCIE ANN CARRUTH, B.S., M.S., PH.D., *Professor and Chairman of Women's Physical Education Department* (1957).

EVERETT CHARLIE CARTER, B.S.C.E., M.E., *Assistant Professor of Civil Engineering* (1963).

JANIE VIRLE CARTER,* A.B., *County 4-H Agent, Cooperative Extension Service* (1963), 1957.

MARIA HILLIARD CARTLEDGE, A.B., *Research Assistant in Agronomy and Genetics* (1961), 1952.

JOHN ANTHONY CARUSO, A.B., M.A., PH.D., *Professor of History* (1961), 1950.

MICHAEL A. CARUSO, B.S., M.A., *Instructor in Education; Teacher, University High School* (1956).

KENNETH LLEWELLYN CARVELL, B.A., M.F., D.FOR., *Associate Professor of Silviculture; Associate Silviculturist, Agricultural Experiment Station* (1956), 1953.

ROBERT HARRY CASE, S/SGT., B.S., *Instructor and Librarian, Army ROTC Library* (1962), 1961.

REBA WHITE CASTILLOS, A.B., A.M., *Instructor in Spanish, University Extension Division* (1960).

GENE ALVIN CASTO, B.S., M.S., *Assistant Professor of Agricultural Education and Lecturer in Extension Methods and Crop Production, Bukalasa Agricultural College, Uganda, East Africa* (1963).

WALTER E. CASTRO, B.S.M.E., M.S.M.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962). (Resigned August 22, 1963).

CARL HENRY CATHER, P.E., B.S.M.E., M.S.M.E., *Professor of Theoretical and Applied Mechanics* (1960), 1916.

CARL HENRY CATHER, JR., M.D., *Assistant Professor of Surgery* (1963), 1960.

HAROLD MALCOLM CATHER, P.E., B.S.M.E., M.S.M.E., M.E., *Professor of Mechanical Engineering; Mechanical Engineer, Engineering Experiment Station* (1960), 1919.

JACK DUANE CAWTHON, B.A., *Assistant University Editor* (1964), 1962.

Carol M. Cecil,* A.B., *County Home Demonstration Agent, Cooperative Extension Service* (1962).
Earl Archie Cecil, B.S., M.B.A., *Instructor in Economics* (1962).
Charles Richard Chamberlain, Jr., B.A., M.D., *Assistant Professor of Pathology* (1963), 1961.
Peter Chang, M.D., *Resident in Surgery* (1963).
Tong Hyun Chang, M.D., *Resident, Fourth Year* (1962).
Robert James Charlton, B.S.A.E., *Instructor* (part-time) in *Mechanical Engineering* (1963).
Roger Vernon Chastain, D.D.S., *Assistant Professor of Operative Dentistry* (1960).
Shih-Chieh Chen, B.S., M.S., *Assistant in Agricultural Biochemistry, Agricultural Experiment Station* (1960), 1959.
Wong I. Chen, B.S., M.S., *Petroleum Research Engineer, School of Mines* (1963), 1962.
Ernest Watson Chick, A.B., M.D., *Associate Professor of Medicine; Director, Division of Preventive Medicine* (1963).
Mary S. Chico, R.N., *Chief Relief and Night Nursing Supervisor, University Hospital* (1960).
William Henry Childs, B.S., M.S., Ph.D., *Professor of Horticulture; Horticulturist, Agricultural Experiment Station* (1953), 1931.
Daphne Bartley Chin Quee, A.B., M.A., *Instructor in English* (1963).
Oliver Perry Chitwood, Ph.D., LL.D., Litt.D., *Professor Emeritus of History* (1946), 1907.
Gurij Chmelev, B.S., M.A., *Instructor in Russian* (1963).
Walter Steven Chmielewski, B.S.M.E., M.S.N.E., *Instructor in Mechanical Engineering* (1963).
Young Kil Choi, M.D., *Resident in Medicine* (1962).
Burr, Clark, Jr., B.S., M.S., *Instructor in Animal Industry and Veterinary Science* (1963), 1960. (Resigned July 1, 1963).
John William Clark,* B.S.Agr., *County 4-H Agent, Cooperative Extension Service* (1958).
Martha Kate Clark,* B.S.H.E., M.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1961), 1957.
Mary Dorcas Clark, A.B., M.D., *Physician, University Health Service* (1961).
Rhoda Mildred Clark, A.B., M.S., M.A.L.S., *Senior Catalogue Librarian* (part-time) (1961), 1954.
Thomas Baird Clark, B.S.A., M.S., *Professor Emeritus of Poultry Science; Poultry Husbandman Emeritus, Agricultural Experiment Station* (1959), 1927. (Deceased May 4, 1964).
William G. Clark,* B.S., *County 4-H Agent, Cooperative Extension Service* (1958).
William Lawrence Clark,* B.S., M.S., *County Agent, Cooperative Extension Service* (1953), 1951.
James Harris Clarke, B.S.Agr., M.S.Agr., *Professor of Agricultural Economics; Agricultural Economist, Agricultural Experiment Station* (1960), 1939.
John Donald Clarkson, B.F.A., M.A., *Professor and Chairman of Art* (1961), 1948.
Roy Burdette Clarkson, B.S., A.B., Ph.D., *Assistant Professor of Biology* (1960), 1956.
Jesse Franklin Clovis, B.S.F., M.S., Ph.D., *Associate Professor of Biology; Pre-Medical Adviser* (1963), 1957.
Billie Jeane Coates,* B.S., *County 4-H Agent, Cooperative Extension Service* (1954).
Vivian B. Cobun, B.S., *Assistant to the Comptroller* (1961), 1935.
Charles Nelson Cochran, A.B., M.S., *Assistant Professor of Mathematics* (1957), 1951.
Charles Franklin Cockrell, B.S., *Project Research Engineer, Coal Research Bureau* (1963).
Billy Lee Coffindaffer,* B.S., M.S., Ph.D., *Area Director, West Virginia Appalachian Center, Cooperative Extension Service* (1963), 1950.
Charles Richard Coffman, B.S., *Superintendent, Agronomy Farm* (1957). (Resigned October 31, 1963).
Marilyn Helen Coffron, B.A., M.A., *Instructor in English* (1961).

DAVID DALE COLE, B.S., M.A., *Instructor in Psychology* (1960), 1958.
HELEN F. COLE,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1946).
GEORGE HENRY COLEBANK, A.B., M.A., *Associate Professor Emeritus of Education* (1950), 1928.
RAYMOND W. COLEMAN, B.B.A., M.B.A., PH.D., *Professor of Economics and Management* (1962), 1948. (On leave of absence June 1, 1963 to June 1, 1964).
ROBERT EUGENE COLEY, B.A., M.A., *Instructor in English* (1959).
ARMAND RENE COLLETT, A.B., PH.D., *Professor of Chemistry* (1939), 1924.
CLIFFORD WARTHEN COLLIER, JR.,* B.F.A., M.L.A., *State Extension Landscape Architect, Cooperative Extension Service* (1960).
EDMOND BYRL COLLINS, B.S.AG.E., M.S.AG.E., *Assistant Professor of Agricutural Engineering; Assistant Agricultural Engineer, Agricultural Experiment Station* (1962), 1960.
HENRY D'ALTON COLLINS, B.S., LL.B., LL.M., J.S.D., *Professor of Law* (1956), 1950.
CLYDE LEMUEL COLSON, A.B., LL.B., S.J.D., *Dean, College of Law* (1956), 1935.
ROBERT IRVIN COLTRANE, B.S., M.S., *Agricultural Economist, United States Department of Agriculture, cooperating with the Department of Agricultural Economics and Rural Sociology* (1962).
PHILIP EDMUND COMER, A.B., M.S., *Psychometrist, Student Counseling Service* (1962), 1961.
FRANK GIRARD COMERFORD, C.E., *Coordinator for Basic Refresher Engineering Courses in Charleston, W. Va., University Extension Division* (1953).
DONALD R. COMLEY, D.D.S., *Instructor in Oral Surgery* (1961).
WILLIAM LINDELL CONES, B.S.F., M.F., *Instructor in Forestry, Egerton Agricultural College, Njoro, Kenya, East Africa* (1963), 1962.
WILLIAM HOWARD CONKLE,* B.S., M.S., PH.D., *State Extension Horticultural Specialist, Cooperative Extension Service* (1959), 1941.
REX BOLAND CONN, JR., B.S., M.D., B.SC., M.S., *Associate Professor of Pathology; Director of Clinical Laboratories,, University Hospital* (1962), 1960.
ROBERT HARRY CONN, A.B., M.A., *Instructor in Romance Languages, Parkersburg Branch* (1962).
VICTORIA SELLENS CONN, R.N., B.A., M.N., M.A., *Research Associate Professor of Nursing* (1961).
JERALD LEONARD CONNELLY, B.S., PH.D., *Assistant Professor of Biochemistry* (1961). (Resigned June 30, 1963).
MARY D. CONRAD,* B.S., *County 4-H Agent, Cooperative Extension Service* (1962), 1936.
CARL H. COOK,* B.S.AGR., *County Agent, Cooperative Extension Service* (1962).
CHARLES CARUTHERS COOK, B.S.M.E., M.S.I.E., *Assistant Professor of Industrial Engineering* (1960), 1955. (On leave of absence 1963 to 1964).
KERMIT ALDERSON COOK, A.B., M.A., PH.D., *Professor of Education* (1959), 1935.
RUTH ELIZABETH COOK, B.S.H.E., M.S.H.E., *Instructor in Education; Teacher, University High School* (1951).
BRENT ALDEN COOL, CAPT., A.B., B.S., *Assistant Professor of Air Science* (1962).
MELVIN GERALD COOPER, CAPT., M.A., LL.B., *Assistant Professor of Air Science; Assistant Professor* (part-time) *of Political Science* (1959.) (Resigned June 30, 1963).
JEAN MCQUISTON COOVER, A.B., M.A., *Instructor in Mathematics* (1956), 1943.
MULLEN OGLE COOVER, A.B., M.S., *Instructor in Biology* (1961), 1950.
WALTER LEE COPLIN, B.M., M.M., *Assistant Professor of Music* (1952), 1947.
ROBERT G. CORBETT, B.S., M.S., *Assistant Professor of Geology* (1962).
L. WILLIAM CORBIN,* B.S., *County Agent, Cooperative Extension Service* (1950), 1948.
ALFRED CLINTON CORE, B.S., M.S., PH.D., *Assistant Professor of Pharmaceutical Chemistry* (1961), 1960.
EARL LEMLEY CORE, A.B., M.A., PH.D., D.SC., *Professor and Chairman of Biology* (1948), 1928.
ARTHUR RICHARD COREY, B.S.J., *Assistant Editor, Agricultural Experiment Station* (1963).

JOHN REGIS CORRIVEAU, A.A.S., B.S., *Teacher* (part-time), *University High School* (1962). (Resigned June 1, 1963).
BEVERLY CLAIRE CORTES, A.B., M.A., *Instructor in Speech* (1961).
EARL EUGENE CORUM, B.S., M.S., *Head Football Coach* (1960), 1950.
RUSSELL JOSEPH CRANE, B.S.ED., M.S.ED., *Assistant Football Coach* (1952).
MARGIE LOUISE CRAWFORD,* B.S., *County 4-H Agent, Cooperative Extension Service* (1959).
COLIN MISKIMMIN CRAYTHORNE, M.D., *Resident in Surgery* (1962).
N. W. B. CRAYTHORNE, B.CH., M.B., *Associate Professor and Chairman of Anesthesiology* (1962), 1961.
DAVID RAYMOND CREEL,* *Photographer, Agricultural Experiment Station and Cooperative Extension Service* (1947).
JOHN REGINALD CRESSWELL, B.A., PH.D., *Professor of Philosophy* (1949), 1929.
HOWARD O. CROASMUN, B.S., *Financial Secretary, Comptroller's Office; Lecturer in Commerce* (1956).
STEPHEN FULLER CROCKER, A.B., M.A., *Professor of English* (retired) (1963), 1931.
EDWIN WILLIAM CROOKS, B.S., M.A., M.B.A., D.B.A., *Associate Professor of Marketing; Assistant Dean, College of Commerce* (1961), 1954.
ORRIN HARTSHORN CROSS, A.B., M.S., PH.D., *Associate Professor of Psychology* (1957), 1951.
VIRGINIA HAMM CROSS, C.P.A., B.S., M.B.A., *Lecturer* (part-time) *in Economics* (1963).
CYRUS CRUM,* B.S.AGR., *County Agent, Cooperative Extension Service* (1952).
RAY ELLSWORTH CUBBERLY, B.A., M.A., *Assistant Professor of History* (1963).
GEORGE EDWARD CULLEN, JR., CAPT., A.A., B.S.J., *Assistant Professor of Air Science* (1961).
DONALD L. CUNARD, B.S.A.E., *Instructor in Aerospace Engineering* (1963).
A. B. CUNNINGHAM, A.B., M.S., PH.D., *Professor of Mathematics* (1960), 1946.
CORNELIUS JETT CUNNINGHAM, JR.,* B.S., M.S., *County Agent, Cooperative Extension Service* (1963), 1962.
GLENNIS HUDKINS CUNNINGHAM, A.B., M.A., *Instructor in Education* (1956).
GLORIA JEANNE CUNNINGHAM, B.S., M.S., *Teacher, University High School* (1958).
RICHARD ALVIN CUNNINGHAM, B.S., M.ED., *Instructor* (part-time) *in Education* (1963).
RICHARD J. CUPELLI, B.S., *Auditor Grants, Comptroller's Office* (1963).
ROBERT FRANCIS CURRAN, CAPT., B.S., *Associate Professor of Military Science* (1960). (Resigned October 3, 1963).
RICHARD ALLEN CURRIE, B.S., M.D., *Assistant Professor of Surgery* (1961).
JOHN MCAVOY CURRY,* B.S.AGR., M.S., *County Agent, Cooperative Extension Service* (1958), 1937.
QUIN FISCHER CURTIS, A.B., A.M., PH.D., *Professor of Psychology; Chairman of Psychology* (1949), 1941.
ANCIL BURTON CUTLIP,* B.S.AGR.ED., M.S., *Area Extension Development Agent, Cooperative Extension Service* (1961), 1958.
HARLEY VAUGHN CUTLIP,* A.B., *State 4-H Programs Leader; Director, Jackson's Mill* (1955), 1943.
JOHN D. CUTLIP,* B.S., *County Agent, Cooperative Extension Service* (1959).
RICHARD HILL CUTLIP,* B.S., *County Agent, Cooperative Extension Service* (1959).
ANDREW JACKSON DADISMAN, B.S.A., M.S., PH.D., *Professor Emeritus of Economics* (1957), 1914 .
STANLEY EVERETT DADISMAN, A.B., LL.B., *Professor of Law* (1957).
RICHARD HENRY DANA, A.B., M.S., PH.D., *Professor of Psychology* (1961).
THOMAS DILLARD DARBY, B.S., M.S., PH.D., *Associate Professor of Pharmacology* (1962).
BROOKS DAUGHERTY,* B.S., *County Agent, Cooperative Extension Service* (1945), 1935.
MERLE EVELYN DAUGHERTY, A.B., M.A., *Instructor in English, Parkersburg Branch* (1961).
DONALD DAVIDSON, B.S., M.S., D.D.S., *Visiting Lecturer and Consultant in Dentistry* (1963), 1961.

Paul Colwell Davidson, B.A., M.D., *Instructor in Medicine* (1963), 1961.
Carole Ann Davis, B.S., *Medical Dietitian, University Hospital* (1962).
Claude Jefferson Davis, A.B., M.A., Ph.D., *Director, Bureau for Government Research* (1961), 1957.
Hannibal A. Davis, A.B., M.S., Ph.D., *Professor of Mathematics* (1948), 1924.
John Boatman Davis, B.S., D.D.S., *Professor and Chairman of Prosthodontics* (1957).
Leonard McCutchan Davis, A.B., M.A., Ph.D., *Associate Professor of Speech* (1963), 1949.
Lloyd Moore Davis, A.B., M.A., *Instructor in English* (1959).
Paul Lawrence Davis, A.B., M.S., *Instructor in Mathematics* (1962).
Robert Boatman Davis, A.B., D.D.S., *Instructor in Prosthodontics* (1962). (Resigned October 31, 1962).
Roland Parker Davis, S.B., Ph.D., *Dean Emeritus, College of Engineering* (1955), 1911.
Oreta Holbert Dawson, A.B., M.A., *Instructor in English* (1947), 1946.
Samuel Joseph Deal, B.S., M.S., Ph.D., *Assistant Professor of Microbiology* (1960).
Thomas C. Dean, A.A.S., *Food Service Manager, University Cafeteria* (1962).
Edna Decker, R.N., B.S., *Head Nurse, Station* 81, *University Hospital* (1962), 1961.
Robert L. Decker, B.A., M.A., Ph.D., *Associate Professor of Psychology* (1962), 1955.
Charles Leroy Delaney, *Instructor in Industrial Engineering* (1946).
Rafael Rivera del Valle, A.B., M.A., Ph.D., *Associate Professor of Latin American Studies* (1963).
Michael Leo DeMatte, B.S., M.S., *Instructor* (part-time) *in Chemistry* (1963), (1959).
John Henry Dempsey, A.B., D.D.S., *Instructor in Periodontics* (1961), 1960.
Doris Houser Denison, B.S., *Teacher, University High School* (1960). (Resigned September 1, 1963).
Carl Dennler, Jr., B.S., M.S., Ph.D., *Assistant Professor of Accounting* (1957). (Resigned September 1, 1963).
Don Richard Denton, B.S., *Instructor* (part-time) *in Civil Engineering* (1963).
Paul Carlton Desper, B.A., M.D., *Fellow in Endocrinology and Metabolism* (1963), 1962.
Aleta Strader Detamore,* A.B., *County 4-H Agent, Cooperative Extension Service* (1960).
Wylene Pool Dial,* A.B., *County 4-H Agent, Cooperative Extension Service* (1957).
Adolfo Rodrige Diaz-Perez, B.A., M.D., *Clinical Assistant Professor of Pathology,* (1962).
Donald C. Dickenson, B.A., M.D., *Intern, University Hospital* (1963).
Walter Howard Dickerson, P.E., B.S.C.E., B.S.Agr.Eng'g., M.S.Agr.Eng'g., *Professor of Agricultural Engineering; Agricultural Engineer, Agricultural Experiment Station* (1957), 1953.
Edmund Charles Dickinson, A.B., J.D., *Professor Emeritus of Law* (1952), 1921.
Patricia A. Diehl, R.N., B.S., *Instructor in Nursing* (1961).
Montelle Dietrich, B.S., M.S., *Associate Professor of Home Economics* (1962), 1929.
Geraldine Buckley Dilley,* B.S., *County 4-H Agent, Cooperative Extension Service* (1961).
Evelyn DiTosto, B.S., M.A., *Instructor in Education* (1963), 1962.
Elizabeth June Dively, R.N., *Head Nurse, Station* 31, *University Hospital* (1963), 1961.
John Leslie Dixon, B.S.M.E., B.S.E.E., *Instructor in Mechanical Engineering* (1961). (Resigned May 31, 1963).
Marian Edwards Doane, B.A., *Foreign Student Adviser; Assistant, Director of Admissions Office* (1963).
Gideon Stanhope Dodds, B.A., M.A., Ph.D., *Professor Emeritus of Histology and Embryology* (1951), 1918.
Roscoe Franklin Dodrill,* B.S.Agr., *County Agent, Cooperative Extension Service* (1953), 1943.

Chester Lee Dodson, B.S., M.S., *Assistant Professor of Hydrology; Research Hydrologist, Office of Research and Development* (1963).

William Thomas Doherty, Jr., A.B., B.S., M.A., Ph.D., *Professor and Chairman, Department of History* (1963).

Alan Chase Donaldson, B.A., M.S., Ph.D., *Associate Professor of Geology* (1962), 1957.

Charles Gilbert Donaldson, B.S., M.S., *Assistant Football Coach; Instructor in Physical Education* (1956).

Phillip Barnard Donley, B.S., Cert.Phys.Therap., *Assistant Athletic Trainer; Instructor in Physical Education* (1960).

Robert Tucker Donley, A.B., LL.B., *Professor of Law* (1947), 1929.

Patrick Andrew Donally, B.S.I.E., *Instructor in Industrial Engineering* (1960). (Resigned May 31, 1963).

Lana D. Dooley,* B.S.H.E., *County 4-H Agent, Cooperative Extension Service* (1963).

Carl Kester Dorsey, A.B., M.S., Ph.D., *Professor of Entomology; Entomologist, Agricultural Experiment Station* (1951).

Carleton Paul Doresey,* B.S.Agr., M.S.Agr., *State Extension 4-H Leader, Cooperative Extension Service* (1952), 1927.

Catherine McKelvey Dorsey, B.A., M.A., *Instructor in Education; Teacher, University High School* (1948), 1943.

J. Robert Dosier, B.S., M.A., *Instructor in Mathematics* (1959).

Samuel Charles Dotson, Jr., B.S., B.M., M.D., *Physician, University Health Service* (1960).

Vicki Vickers Douglas, B.S., *Counselor to Women,* (1962).

David William Dowdell, A.B., A.M., *Instructor in English* (1947), 1946.

Sheldon C. Downes, B.S., M.S., *Instructor in Rehabilitation Counseling* (1962).

Fairy Alice Downs,* A.B., M.A., *County Agent, Cooperative Extension Service* (1958).

Leslie Dozsa, D.V.M., *Associate Professor of Veterinary Science; Associate Veterinarian, Agricultural Experiment Station* (1961), 1957.

Barbara Adeline Drainer, B.A., M.A., Ed.D., *Assistant Professor of Art* (1957), 1952.

Albert E. Drake, B.S., M.S., Ph.D., *Director, Computer Center* (1963).

Ora A. Drake,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1959).

Thomas Mitchell Drake, A.B., M.A., *Assistant Professor of Political Science* (1962).

John William Draper, B.A., M.A., Ph.D., *Professor of English* (1929).

Ilona J. Drozd, B.S., *Clinical Research Dietitian, University Hospital* (1962), 1961.

Arno Paul Drucker, B.M., M.M., *Assistant Professor of Music* (1962), 1959.

Ruth Landes Drucker, B.M., M.M., *Instructor* (part-time) *in Music* (1961).

Everette Charles Dubbe, P.E., B.S.E.E., *Associate Professor of Electrical Engineering* (1959), 1947.

Robert Bradford Duke, B.A., B.D., M.A., *Psychologist, Medical Center* (1962).

Robert Standish Dunbar, Jr., B.S., M.S., Ph.D., *Professor, Chairman and Animal Husbandman of Animal Industry and Veterinary Science* (1963), 1952.

Ray Oscar Duncan, A.M., Ed.M., Ed.D., LL.B., *Professor of Physical Education; Dean, School of Physical and Health Education, Recreation, and Safety* (1952).

Richard Edward Duncan, B.M., M.A., Ph.D., *Dean and Director, Creative Arts Center* (1964), 1958.

Ralph Harper Dunkle,* B.S., *County Agent, Cooperative Extension Service* (1962), 1959.

Phyllis Aline Dusic, B.S., *Teacher* (part-time), *University High School* (1963).

Robert Barclay Dustman, Ph.D., *Dean Emeritus of the Graduate School* (1960), 1924.

Robert Gilkey Dyck, A.B., B.Arch., M.C.P., *Research Planner and Assistant Professor of Planning, Office of Research and Development* (1963).

Ann Culley Dye, B.S.H.E., *Dietitian, Women's Dining Hall* (1937).

Arthur Pingree Dye, B.S.Agr., M.S., *Associate Professor of Horticulture; Associate Horticulturist, Agricultural Experiment Station* (1962), 1923.

PHYLLIS GERSBACH DYE, B.M., M.M., *Instructor in Music* (1961). (Resigned May 31, 1963).

WILBUR DEWAYNE DYE,* B.S., M.S., *Area Extension Development Agent, Cooperative Extension Service* (1961), 1957.

JAMES E. DYSON, JR., B.S., M.S., PH.D., *Associate Professor of Microbiology; Director, Academic Communications Division* (1963), 1958.

FREDONA ANN EAMES, B.S.N, M.S.N., *Instructor in Pediatric Nursing* (1962).

GEORGE WASHINGTON EASLEY, B.S., M.D., *Clinical Instructor in Surgery* (1961).

JASON CLARK EASTON, B.A., M.A., PH.D., *Professor of History* (retired) (1963), 1938.

JOY BROMBERG EASTON, B.S., M.S., *Instructor in Mathematics* (1955), 1948.

ALPHONSE CHARLES EDMUNDOWICZ, B.S., M.D., *Assistant Professor of Medicine* (1963).

DAVID EVERETT EDWARDS, M.D., *Psychiatrist* (part-time), *University Health Service* (1959).

NICHOLAS GEORGE EHLE, B.A., M.A., *Instructor in English* (1963), 1960.

JOHN EICHENMULLER, JR., A.B., M.S., *Assistant in Plant Pathology, Agricultural Experiment Station* (1958).

EUGENE RANDALL ELKINS, A.B., *Senior Research Analyst, Bureau for Government Research* (1961), 1952.

ROSE ANN ELLEM, A.B., A.M., *Instructor in English, Parkersburg Branch* (1962).

EDWARD SUMNER ELLIOTT, B.A., M.S., PH.D., *Associate Professor of Plant Pathology; Associate Plant Pathologist, Agricultural Experiment Station* (1961), 1953.

GUSTINE B. ELLIOTT,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1954).

KENDALL CLARK ELLIOTT, B.S., M.S.AGR.E., *Assistant Professor of Agricultural Engineering; Assistant Agricultural Engineer, Agricultural Experiment Station* (1962), 1954.

JOAN MARIE ELLIS, B.A., M.A., *Assistant Curator, West Virginia Collection, Library* (1957).

RICHARD NEAL ELLIS, B.S., M.A., *Instructor in Education* (1961). (Resigned August 15, 1963).

HELEN STEELE ELLISON, A.B., M.S.S.W., *Assistant Professor of Social Work* (1958), 1954.

RUSSELL G. ELLYSON, B.S.AGR., *Technical Leader, Tanganyikan Students, East African Agricultural Programs* (1962), 1934.

FIROOZ EMAMI, M.D., *Staff Physician in Medicine* (1962).

JOSEPH C. EMCH,* B.S., M.S., *State Extension Animal Husbandry Specialist, Cooperative Extension Service* (1953), 1947.

ROY EUGENE EMERSON, B.S., M.S., *Associate Professor of Agricultural Engineering; Associate Agricultural Engineer, Agricultural Experiment Station* (1957), 1940.

JON EVAN ENGBERG, B.M., M.M., *Assistant Professor of Music* (1963), 1959.

DOROTHY CATHERINE ENGLE, A.B., M.A., *Instructor in Education; Teacher, University High School* (1955).

FREDA BARBARA ENGLE, R.N., B.S., A.M., *Assistant Professor of Public Health Nursing* (1961). (Resigned April 15, 1963).

CLYDE NEVILLE ENGLISH, B.A., M.S.M., D.S.M., A.A.G.O., *Associate Professor of Music* (1953), 1945.

GRACE METZGER ENGLISH, B.A., *Assistant to Director of Residence Halls* (1956).

ROBERT SAMUEL ENGLISH, B.S., M.D., *Clinical Instructor in Medicine* (1963).

THOMAS EDSON ENNIS, A.B., M.A., PH.D., *Professor of History* (1946), 1930.

PATRICIA ANN ERVIN, B.S., *Administrative Dietitian, University Hospital* (1962).

HOMER CLARK EVANS, B.S., M.S., PH.D., *Professor and Chairman of Agricultural Economics and Rural Sociology; Agricultural Economist, Agricultural Experiment Station* (1960), 1949.

CHARLES RICHARD EVCES, B.S.M.E., M.S.M.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1963).

E. JANE EYER, B.S., M.S., *Instructor in Medical-Surgical Nursing* (1963).

PHILIP JAMES FAINI, B.M., *Instructor in Music* (1961).

HAROLD VINCENT FAIRBANKS, P.E., B.S., M.S., *Professor of Metallurgical Engineering; Metallurgical Engineer, Engineering Experiment Station* (1955), 1947.

Hsai-Yang Fang, B.S.C.E., M.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1963).

Stanley Farr, B.S.Ch.E., M.S., *Instructor in Physics* (1953), 1947.

Joseph Leo Fasching,* B.S.J., *State Extension News Editor, Cooperative Extension Service* (1962).

Shirley Ann Faulkner, A.B., M.N., M.S.N., *Instructor in Maternal-Child Nursing* (1963).

Martha Fleming Fawcett, Stnd. Norm., *Social Director, Woman's Hall, North* (1959).

Marja Steadman Fear, M.A., *Associate Professor Emeritus of Speech* (1953), 1920.

Catherine Michele Federoff, R.N., B.S., M.A., *Assistant Professor of Medical-Surgical Nursing* (1962).

Donald Charles Ferguson, B.S., M.S., Ph.D., *Assistant Professor of Psychology; Director, University Counseling Center* (1961). (Resigned June 30, 1963).

Orlando Liduvino Fernandez, M.D., *Staff Physician, V.A. Hospital, Clarksburg, W. Va.* (1962).

Remo Ferrante, B.S., M.A., *Instructor in German; Assistant in Humanities* (1960).

Frank Lawson Ferrell, *Instructor in Military Science* (1959). (Resigned November 30, 1962).

Edward Burton Findley, *Supply Sergeant in Military Science* (1959).

Gordon B. Fink, B.A., M.D., *Assistant Professor of Pathology* (1961).

Reginald Hedges Fink, B.M., M.M.Ed., *Assistant Professor of Music* (1962).

Francis P. Fisher, A.B., *Lecturer in Journalism; Secretary-Manager, West Virginia Press Association* (1954).

Mildred Fairfield Fisher, *Administrative Assistant to Vice President, Medical Center* (1959), 1926.

Betty G. Fishman, B.A., M.A., *Lecturer in Economics* (1957), 1948.

Leo Fishman, B.A., M.A., Ph.D., *Professor of Economics and Finance* (1952), 1947.

Homer Milton Fizer, B.S., M.S., *Instructor in Education; Teacher, University High School* (1960), 1940.

Mildred Evalena Fizer,* A.B., M.S., *State 4-H Programs Leader, Cooperative Extension Service* (1953), 1946.

Helen H. Fleming,* B.S.H.E., M.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1954), 1952.

William W. Fleming, A.B., M.A., Ph.D., *Assistant Professor of Pharmacology* (1960).

Clifton Wharton Flenniken, Jr., B.S., *Director of Physical Plant* (1961).

Edmund Berney Flink, M.B., M.D., Ph.D., *Professor and Chairman of Medicine* (1960).

Mary Frances Fockler, B.S., M.S., *Metabolic Research Dietitian, University Hospital* (1962), 1961.

Donald Lee Fogus,* B.S., *Area Extension Forestry Specialist, Cooperative Extension Service,* (1961).

Joe Edward Ford, A.B., M.A., *Assistant Professor of Speech; Supervisor, University Theatre; Director, W. Va. High School Drama Festival* (1962), 1953.

Margaret Jaco Ford, B.S., B.A., *Administrative Assistant to Dean, School of Medicine* (1963), 1958.

O. Rex Ford, Ph.D., *Professor Emeritus of Physics* (1963), 1925.

George E. Fore, B.S., *Instructor for Radiological Instructors, Civil Defense Office, University Extension Division* (1963).

William Robert Fortney, B.S., M.S., Ph.D., *Associate Professor of Horticulture; Associate Horticulturist, Agricultural Experiment Station* (1960), 1956.

James Hunter Fortune, Jr., B.S., M.S., *Instructor in Mathematics, Parkersburg Branch* (1962).

Ruel Elton Foster, A.B., M.A., Ph.D., *Professor of English* (1957), 1942.

William Lawrence Fourney, B.S.A.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962). (Resigned May 31, 1963).

Robert Durant Fowler, P.E., B.S.I.E., B.S.E.E., M.S.I.E., *Associate Professor of Industrial Engineering* (1959).

CLAUD MAHLON FRALEIGH, D.D.S., M.S.D., *Professor and Chairman of Periodontics* (1959).

FREDERICK WILLIAM FRANCK, B.A., M.A., *Instructor in Foreign Languages; Adviser, University Film-Arts Series* (1960).

CARL MAYNARD FRASURE, B.A., M.A., PH.D., *Dean, College of Arts and Sciences; Professor of Political Science* (1961), 1927.

BEN FRANK FREEDMAN, B.F.A., M.A., *Assistant Professor of Art* (1962), 1957.

MARY I. FREELAND, B.S.H.E., *Medical Dietitian, University Hospital* (1962).

EMILE G. FRERE, B.S., M.A., PH.D., *Associate Professor of Romance Languages* (1961), 1947.

RAY JEROME FRIANT,* B.S., *Extension Agronomist* (retired), *Cooperative Extension Service* (1960), 1922.

HARRY MARION FRIDLEY, B.S., M.S., PH.D., *Professor of Geology* (1943), 1928.

SARA MARIA FRITSCH, R.N., B.S.N., *Teaching Assistant in Psychiatric Nursing and Nursing Foundations* (1962).

JACK FRONT, B.S., CERT.PHYS.THERAP., *Chief Physical Therapist, Medical Center* (1960).

ALDORSON F. FRY, B.S., M.L.S., M.A., LL.B., *Librarian, Medical Center Library* (1954).

MIRIAM ANN FRYER, B.S., M.T., *Chief Technologist and Instructor in Blood Bank, Clinical Laboratory, University Hospital* (1963).

NICHOLAS WILLIAM FUGO, A.B., M.S., PH.D., M.D., *Professor and Chairman of Obstetrics and Gynecology* (1960).

THOMPSON R. FULTON, A.B., A.M., *Professor of Social Work* (1953), 1946.

JACK WILLIAM FUTRELL, B.A., M.A., *Instructor in English* (1955).

EDSEL GAINER,* B.S., M.S., *State Extension Dairy Specialist, Cooperative Extension Service* (1962), 1961.

PATRICK WARD GAINER, A.B., M.A., PH.D., *Professor of English* (1957), 1946.

MANNON ELIHU GALLEGLY, B.S.A., M.S., PH.D., *Professor of Plant Pathology; Plant Pathologist, Agricultural Experiment Station* (1960), 1949.

ALFRED FREDDIE GALLI, P.E., B.S.CH.E., M.S.CH.E., *Associate Professor of Chemical Engineering* (1962), 1946.

SAMUEL CHESTER GAMBRELL, JR., B.S., M.S., *Instructor in Theoretical and Applied Mechanics* (1963), 1962. (Resigned May 31, 1963).

EDWIN C. GANGLOFF, B.A., M.S., PH.D., *Assistant Professor of Medical Biochemistry* (1955).

DANIEL HODGES GARRISON, A.B., *Instructor in Ancient and Classical Languages* (1962). (Resigned May, 1963).

LOUIS ALLEN GARVIN, COL., USAF, B.S., *Professor of Air Science* (1960).

AVERY FREEMAN GASKINS, A.B., M.A., *Instructor in English* (1958), 1954.

VIRGINIA WOOD GASTON, B.S., *Staff Pharmacist, University Hospital* (1962).

GRANT EATON GAUGER, B.S., M.D., *Instructor in Gross and Neurological Anatomy* (1961). (On military leave July 1, 1962 to July 1, 1964).

WILSON IRVIN GAUTIER, A.B., M.A., *Instructor in Education* (1963), 1960.

THOMAS WILLIAM GAVETT, B.B.A., M.S., PH.D., *Director, Institute of Industrial Relations; Associate Professor of Economics* (1961), 1957.

THOMAS CARR GAWTHROP,* B.A., *County 4-H Agent, Cooperative Extension Service* (1961).

FREDERICK LINCK GEILER, B.S., M.S., *Professor of Pharmacy* (1950), 1928.

HANSAN TAHSIN GENCSOY, B.S.M.E., M.S.M.E., *Associate Professor of Mechanical Engineering* (1962), 1949.

CLARA FAY GEORGE, B.S., *Pharmacist, University Health Service* (1951).

VINCENT FREDERICK GERENCSER, B.S., PH.D., *Assistant Professor of Microbiology* (1961).

WALTER HENRY GERWIG, JR., A.B., M.D., *Professor of Surgery* (1962), 1960.

ALFRED DAVID GHAPHERY, B.S., M.D., *Resident in Surgery* (1961).

NICHOLAS GIARRITTA, B.A., M.D., *Clinical Instructor in Pathology* (1962).

ELEANOR REID GIBBARD, B.A., M.S., M.A., *Instructor* (part-time) *in French* (1963), 1961.

Harold Allan Gibbard, B.A., M.A., Ph.D., *Professor and Chairman of Sociology* (1948).
John Arthur Gibson, Jr., B.S., Ph.D., *Professor of Chemistry* (1953), 1926.
Robert Carlton Gibson, B.A., M.A., Ph.D., *Assistant Professor of Political Science* (1961).
Alan M. Gilbert, B.A., M.H.A., *Assistant Director, University Hospital* (1960).
Bernard Gilbert, B.S., M.S., *Instructor in Mathematics* (1958).
Enid Fischer Gilbert, M.B.B.S., *Assistant Professor of Pathology* (1963).
James Bryson Gilbert, B.S., M.D., *Assistant Professor of Biochemistry* (1963).
Royal Clarence Gilkey, A.B., A.M., Ph.D., *Associate Professor of Political Science* (1963), 1957.
William Harry Gillespie, B.S., M.S., *Instructor in Geology* (1959), 1957.
Chesla Armilla Gilmore, *Laboratory Technician, University Health Service* (1957).
Wilbert E. Gladfelter, A.B., Ph.D., *Assistant Professor of Physiology* (1961), 1959.
Mary Jane Glasscock, B.M., M.M., *Instructor in Education* (1947), 1943.
Eleanor M. Glenn,* B.S.H.E., *District Extension Home Demonstration Supervisor, Cooperative Extension Service* (1961), 1926.
Louis Michael Glick, M.D., *Clinical Instructor in Medicine* (1960).
Joseph Clay Gluck, B.A., B.D., *Director of Student Affairs* (1948), 1943.
Francis Arthur Goad, A.B., M.D., *Resident in Radiology* (1963), 1962.
Herman Godes, M.M., *Associate Professor of Music* (1960).
Helen Louise Godfrey, A.B., M.S., *Instructor in Mathematics* (1961), 1946.
Victoria Gretchen Goens,* A.B., *County 4-H Agent, Cooperative Extension Service* (1944).
Lawrence Peter Golan, B.S.M.E., *Instructor* (part-time) *in Mechanical Engineering* (1962).
John Ford Golay, B.A., M.A., D.Phil.(Oxon.), *Provost of the University; Dean of the Graduate School; Professor of History* (1961).
Joseph Arnold Golz, B.S., M.A., *Associate Professor of Music* (1959).
Elizabeth Jane Goodall, A.B., M.A., *Associate Professor of History, University Extension Division* (1945).
Claude Arwe Goode, B.S., B.S.E.M., *Assistant Director of Mining Extension* (1961), 1956.
William Russell Goodge, B.S., M.A., Ph.D., *Assistant Professor of Gross and Neurological Anatomy* (1961), 1957.
Allen Wright Goodspeed, B.S., M.F., *Professor of Forest Management; Forester, Agricultural Experiment Station* (1949).
Dean Roy Goplerud, B.A., M.D., *Instructor in Obstetrics and Gynecology* (1961).
Helen Margaret Gorman, M.D., *Research Assistant in Surgery* (1962).
Charles Ernest Goshen, M.D., *Associate Professor of Psychiatry* (1962), 1961.
Henry Wadsworth Gould, B.A., M.A., *Assistant Professor of Mathematics* (1961), 1958.
Babette Graf, B.S., M.S., *Assistant Professor of Home Economics* (1961).
Albert Edwin Grafton, B.S.F., M.S.A., *Instructor in Forestry Economics* (1963).
Gertrude Spangler Graham,* B.A.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1958).
William Lee Graham, B.A., D.D.S., *Professor and Chairman of Oral Diagnosis* (1963), 1959.
William Lute Graves, Jr., B.A., B.M., M.A., Mus.Doc., *Assistant Professor of Music* (1960). (Resigned May 31, 1963).
Robert Ivan Gray, Ph.D., *Lecturer in Chemical Engineering, Kanawha Valley Graduate Center* (1963).
Thomas Davis Gray,* B.S., *Extension Landscape Architect* (retired), *Cooperative Extension Service* (1959), 1919. (Deceased December 13, 1963).
Jack Daniel Graybeal, B.S., M.S., Ph.D., *Associate Professor of Chemistry* (1962). 1957.
Thomas Aaron Grayson, *Ticket Manager, Intercollegiate Athletics* (1962).

ROBERT GRECO, B.S., A.B., M.D., *Clinical Assistant Professor of Obstetrics and Gynecology* (1960).
GEORGE GARRET GREEN, B.S., M.D., *Assistant Professor of Radiology* (1963).
FRANK EUGENE GREENE, B.S., PH.D., *Instructor in Pharmacology* (1963).
CAROLYN KIDDY GREGORI, A.B., *Assistant Dietitian, Arnold Hall* (1961).
PATRICIA ANN GREGORY, B.S., *Dental Hygienist, School of Dentistry* (1962).
WILLIAM FISHER GREGORY,* B.S.AGR., *County Agent, Cooperative Extension Service* (1956), 1955.
LLOYD RAYMOND GRIBBLE, B.S., M.S., PH.D., *Associate Dean, College of Arts and Sciences; Professor of Zoology* (1961), 1929.
GRACE MARGARET GRIFFIN, M.A., *Professor Emeritus of Physical Education* (1957), 1923.
LEON W. GRIMM, B.S., M.D., *Surgical Intern, University Hospital* (1963).
LILLIAN V. GROSS, R.N., *Nurse, University Infirmary* (1960).
RUTH BRILL GROSS, B.S., M.S., *Psychometrist, Student Counseling Service* (1961). (Resigned June 30, 1963).
HOWARD RANDALL GRUMPELT, B.A., A.M., *Instructor in Psychology* (1961). (Resigned May 31, 1963).
BETTY ASHBURN GUM,* B.S.AGR., B.S.ED., M.A.ED., *State Extension 4-H and YMW Programs Leader, Cooperative Extension Service* (1963), 1947.
FRANKLIN NEAL GUMP, B.S.M.E., B.S.E.E., *Instructor* (part-time) *in Mechanical Engineering* (1963).
MARSHALL BERNARD GUNSELMAN, B.S., M.S.ED., ED.D., *Assistant Professor of Education* (1961). (Resigned September 1, 1963).
ROBERT FRED GUSTKE, A.B., M.D., *Intern, University Hospital* (1963).
ROLAND LEE GUTHRIE, B.S.F., M.S., *Director of the Arboretum; Instructor in Biology* (1959), 1956.
FRANCISCO ALBERTO GUTIERREZ, M.D., *Assistant Professor of Anesthesiology* (1963).
STANFORD PAYNE GWIN, B.S., M.S., *Instructor in Speech; Assistant Debate Coach* (1963).
ALBERT C. GWYNNE, B.S., M.S., *Head Athletic Trainer, Intercollegiate Athletics; Assistant Professor of Physical Education* (1946), 1934.
RAYMOND MICHAEL HAAS, B.S., M.B.A., D.B.A., *Assistant Professor of Marketing* (1961).
VIRGINIA PEARL HAGEMANN, B.S., A.M., *Assistant Professor of Pediatric Nursing; Assistant to the Dean, School of Nursing* (1961).
CHARLES A. HALEY, M/SGT., *Instructor and Rifle Team Coach, Military Science; Administrative Supervisor, Military Science* (1958), 1953.
JOHN B. HALEY, JR., A.B., D.D.S., *Intern in Oral Surgery* (1963).
ARTHUR A. HALL, B.S.M.E., *Professor Emeritus of Electrical Engineering* (1951), 1916.
BETTY SNYDER HALL, A.B., M.A., *Instructor in Speech* (1963), 1946.
GEORGE ARTHUR HALL, B.S., PH.D., *Associate Professor of Chemistry* (1956), 1950.
JAMES LESTER HALL, A.B., M.S., PH.D., *Professor of Chemistry* (1955), 1946.
JOHN EDGAR HALL, B.S., M.S., PH.D., *Assistant Professor of Microbiology* (1960), 1958.
JOHN GILBERT HALL, B.S., *Land Reclamation Specialist, Agricultural Experiment Station* (1947).
LILLIAN BAILEY HALL, *Dietitian, Women's Dining Hall* (1953), 1952.
SAM H. HALL, S/SGT., USAF, *Administrative Assistant in Air Science* (1960).
SOBISCA STALNAKER HALL, B.S., M.D., *Clinical Assistant Professor of Surgery* (1961).
VIRGINIA MARIE HALLER, B.S., M.A., *Instructor* (part-time) *in Art, Parkersburg Branch* (1963).
F. GERALD HAM, A.B., M.A., PH.D., *Associate Curator, West Virginia Collection, Library; Assistant Professor of History* (1958).
PAUL W. HAMELMAN, A.B., M.B.A., PH.D., *Assistant Professor of Management* (1960).
WILLIAM SPENCER HAMRE, B.A. M.A., PH.D., *Assistant Professor of History* (1963).
JAMES FRANCIS HAMILTON, P.E., B.S.M.E., M.M.E., PH.D., *Acting Chairman and Associate Professor of Mechanical Engineering* (1963), 1956.

JOHN W. HAMMER,* B.S.AGR., *County Agent, Cooperative Extension Service* (1946), 1940.
ROBERT LEE HAMMER,* B.S.AGR., *County Agent, Cooperative Extension Service* (1938), 1937.
CLIFFORD CHARLES HAMRICK, A.B., M.L.S., *Senior Reference Librarian, Library* (1963), 1959.
ROSCOE ELTON HANNA, JR., B.S., *Supervisor of Industrial Extension; Assistant Director of Fire Service Extension* (1949), 1944.
RICHARD E. HARBERT,* B.A.AGR., *County Agent, Cooperative Extension Service* (1947).
EVAN MERRILL HARDIN, *Superintendent of General Services, Physical Plant* (1956).
LENETTE MAY HARDIN, A.B., M.A., *Instructor in Speech* (1959).
NESTOR CARL HARDIN,* B.S., M.S., *State Extension Garden Specialist, Cooperative Extension Service* (1960), 1958.
THOMAS PORTER HARDMAN, M.A., J.D., *Professor Emeritus of Law* (1957), 1913.
HOWARD BRANSON HARDY,* B.S., *County 4-H Agent, Cooperative Extension Service* (1959).
JOHN BARKER HARLEY, B.S., M.D., *Assistant Professor of Medicine* (1955).
JANE ELIZABETH HARMAN, B.A., *Medical Dietitian, University Hospital* (1962).
EUGENE HAMES HARNER,* B.S., M.S., *Associate County Agent, Cooperative Extension Service* (1954).
DEAN OWEN HARPER, B.S.CH.E., M.S., *Assistant Professor of Chemical Engineering* (1963).
HAROLD H. HARPER, B.S.PHARM., *Purchasing Expediter, Purchasing and Inventory, Comptroller's Office* (1961).
DELVIN DAE HARRAH, B.A., M.A., ED.D., *Associate Professor of Education* (1962).
STEPHEN HARRICK, A.B., M.A., *Associate Professor of Physical Education; Head Coach of Basketball and Wrestling* (1955), 1924.
STANLEY ROBERT HARRIS, A.B., M.S., *Registrar* (1963), 1953.
RAY A. HARRON, B.S., M.D., *Clinical Assistant Professor of Radiology* (1962).
HARVEY H. HARTWIG, LT.COL., B.S., *Associate Professor and Executive Officer of Military Science* (1957).
H. RICHARD HARTZLER, A.B., J.D., *Assistant Professor of Business Law* (1959).
GEORGE O'CONNELL HARVEY, A.B., M.A., *Associate Professor of Psychiatric Social Work* (1963), 1961.
JOHN JACKSON HARVEY,* B.S., M.S., PH.D., *Associate Professor of Agricultural Education; Training Leader, Cooperative Extension Service* (1961), 1953.
JOHN KEITH HARVEY,* B.S., M.S., *County Agent, Cooperative Extension Service* (1952).
VIRGINIA COURTNEY HARVEY, B.S.H.E., *Dietitian, Terrace Dining Hall* (1959).
TED ROBERT HASH,* B.S., *State Extension Poultry Specialist, Cooperative Extension Service* (1947), 1937.
MARY ANNE HASTINGS, B.S., *Instructor in Dental Hygiene* (1963).
FABRY LIVINGSTONE HAWK, A.S.C.P., *Assistant Director, University Health Service Laboratory* (1956), 1935.
WILLIAM POST HAWLEY, B.S., *Teacher* (part-time), *University High School* (1963).
DONALD EDWARD HAYHURST, A.B., M.LITT., PH.D., *Associate Professor of Political Science* (1959), 1956.
J. LESTER HAYMAN, PH.C., B.S.PHARM., M.S., *Dean Emeritus and Professor of Pharmacy* (1961), 1919. (Deceased July 6, 1963).
RUSSELL REX HAYNES, B.S.M.E., M.S.T.A.M., *Instructor* (part-time) *in Theoretical and Applied Mechanics; Research Associate, Engineering Experiment Station* (1962).
VORAS KERNS HAYNES,* B.S.AGR., *County Agent, Cooperative Extension Service* (1962).
MILTON TIDD HEALD, A.B., M.A., PH.D., *Professor of Geology* (1960), 1948.
LEE EVANGELINE HEDRICK,* B.S., *County 4-H Agent, Cooperative Extension Service* (1953).
NEIL GRANT HEDRICK,* B.S., *County 4-H Agent, Cooperative Extension Service* (1957).
LOIS VIVANEEN HEFLIN, A.B., M.S., *Instructor in Mathematics* (1956).

Edgar F. Heiskell, Jr., A.B., M.S., M.D., *Clinical Assistant Professor of Surgery; Physician* (part-time), *University Health Service* (1960), 1948.
Harriett Louise Helton, B.S., M.N., *Instructor in Maternity Nursing* (1963).
Marta Jeanne Henderson, B.S., M.T., *Teaching Assistant in Medical Technology* (1963).
Dora Fergusson Hennen, A.B., M.S., *Instructor in Mathematics* (1958), 1933.
James H. Henning, A.B., M.S., Ph.D., *Professor and Chairman of Speech* (1945).
Lyle Eddy Herod, A.B., M.S., *Assistant Registrar, Medical Center* (1956), 1947.
Francisco Herrera, A.B., M.A., *Associate Professor of Romance Languages; Associate Director of Summer Language Institute* (1960), 1946.
Willis H. Hertig, Jr., A.B., M.A., *Instructor in Biology* (1960).
John William Hesen, A.B., M.S., B.S., M.D., *Physician, Health Service and Intercollegiate Athletics; Assistant Professor of Physical Education* (1959), 1957.
David Norman Hess, A.B., B.D., M.A., Ph.D., *Director of Admissions; Assistant Provost* (1963).
C. Gordon Hewes, B.A., M.S., Ph.D., *Associate Professor of Gross and Neurological Anatomy* (1960).
James Blake Hickman, B.S., M.S., Ph.D., *Professor of Chemistry* (1962), 1946.
John Lewis Hicks, Jr., A.B., A.M., *Assistant Professor of English; Director of Freshman English* (1960), 1949.
Ruth Morrel Hicks, A.B., M.A., *Lecturer* (part-time) *in History* (1961).
A. Curtis Higginbotham, B.S., Ph.D., *Associate Professor of Microanatomy and Organology* (1957).
Leonard F. Higney, S/Sgt., USAF, *Administrative Assistant in Air Science* (1960).
John Delbert Hill, M/Sgt., USAF, *Supply Custodian and Administrative Assistant in Air Science* (1962).
Mabel Elizabeth Hiller,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1926), 1924.
William Joseph Hinkle,* B.S., *Assistant County Agent, Cooperative Extension Service* (1959).
Marcia Louise Hipke, B.S., *Research Technician in Pediatrics* (1962).
Charles Edward Hockenberry, B.S., M.S., *Assistant Business Manager of Intercollegiate Athletics* (1956), 1952.
Theodore Skeen Hoffman, B.S., *Head Medical Technologist, University Hospital* (1961).
Arthur Newsome Hofstetter, A.B., M.A., Ed.D., *Professor of Education; Coordinator, Research and Field Services, College of Education* (1960), 1955.
John Wesley Hogan, B.A., M.S., *Instructor in Mathematics* (1962).
Harlan Bailey Hogue,* B.S.Agr., *County Agent, Cooperative Extension Service* (1935).
Margaret Price Hoke, A.B., M.A., *Instructor in Integrated Studies and English* (retired) (1963), 1955.
Ida Elizabeth Holcombe,* B.S., *County Home Demonstration Agent, Cooperative Extension Service,* (1943).
Charles Thomas Holland, B.S.E.M., M.S.E.M., *Dean, School of Mines; Director, Mining and Industrial Extension; Professor of Mining Engineering* (1961), 1930.
Gordon Payne Holt, M.D., *First-Year Resident in Surgery* (1962). (Resigned September 9, 1963).
Marsh Hanford Holt, B.S., M.D., *First-Year Resident in Anesthesiology* (1962), 1961. (Resigned June 30, 1963).
Frederick John Holter, A.B., M.A., Ph.D., *Professor and Chairman of Health Education and Graduate Studies* (1948), 1947.
Richard Lee Hopkins, B.S.J., M.S.J., *Instructor in Journalism* (1963).
Ninnian Edward Hopson, B.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1961).
Leo Horacek, B.M.E., B.M., M.M.E., Ph.D., *Associate Professor of Music* (1962), 1960.
Margaret Baker Horacek, A.B., *Binding Assistant* (part-time), *Medical Center Library* (1962), 1961.
Joe R. Horton, *Purchasing Expediter, Purchasing and Inventory, Comptroller's Office* (1959).

Donald James Horvath, B.S., M.S., Ph.D., *Associate Professor of Animal Science; Associate Animal Husbandman, Agricultural Experiment Station* (1960), 1957.
Ali A. Hossaini, B.A., M.S., Ph.D., *Instructor in Clinical Pathology* (1962). (Resigned May 26, 1963).
Stanley M. Hostler, B.A., M.A., *Assistant Director, University Extension Division; Director, Labor Education Service* (1962), 1959.
N. Jean Houchins, B.S., B.S.Ed., M.A., *Instructor in Education* (1963), 1962.
Douglas W. Houston, A.B., M.A., Ph.D., *Assistant Professor of History* (1961).
Agnes B. Hovee, B.A., M.A., *Director of Residence Halls* (1956), 1950.
John Weston Howard, A.B., A.M., *Assistant Professor of Dental Literature* (1959), 1950.
Martha Cummins Howard, A.B., A.M., *Instructor in English* (1960).
Herbert Henry Howenstein, *Research Technician in Agricultural Engineering* (1961), 1956.
Halley J. Hubbs,* A.B., *County 4-H Agent, Cooperative Extension Service* (1945).
Earl Hudelson, A.B., M.A., Ph.D., *Professor Emeritus of Education* (1959), 1920.
Hayward H. Huff,* B.S.Agr., *County Agent, Cooperative Extension Service* (1934), 1932.
Paul E. Huffington, M.D., *Instructor in Anesthesiology* (1963), 1962.
Donald Thedron Huffman, B.A., M.A., *Instructor in German; Director of Language Laboratory, Department of Foreign Languages* (1956).
Kathryn Huffman, A.B., M.S., *Assistant Chemist* (part-time), *Engineering Experiment Station* (1944). (Resigned July 1, 1963).
Stanley Ausburn Huffman, Jr., B.S., M.Ed., Ed.D., *Assistant Professor of Education* (1963).
George Louis Humphrey, A.B., M.S., Ph.D., *Acting Chairman and Professor of Chemistry* (1963), 1952.
Gertrude Humphreys,* A.B., *State Extension Home Demonstration Leader, Cooperative Extension Service* (1933), 1926.
Robert Tasker Humphries, M.D., *Assistant Clinical Professor of Surgery* (1961).
Albert J. Humza, B.A., M.A., *Labor Education Specialist, University Extension Division* (1963).
Jacqueline Jeanette Hunt,* A.B., *County 4-H Agent, Cooperative Extension Service* (1948).
Harold T. Hunter, B.A., M.S., *Assistant Football Coach* (1962).
Henry Winthrop Hurlbutt, B.A., M.S., Ph.D., *Assistant Professor of Biology* (1963).
Beatrice Hurst, A.B., M.A., *Associate Professor of Women's Physical Education* (1951), 1928.
Ethel Smith Hurst, R.N., *Head Nurse, Out-Patient Department, University Hospital* (1963), 1960.
Donald Aubry Hutchison,* B.S., M.S., *County Agent, Cooperative Extension Service* (1950), 1949.
Jane Anderson Hutchinson,* B.S.H.E., *County Home Demonstration Agent-In-Training, Cooperative Extension Service* (1963).
Joseph M. Hutchinson, Jr., A.B., M.S., *Assistant Professor of Recreation* (1961), 1957.
Oscar C. Hutchinson,* B.S.Agr.Ed., *Area Extension Development Agent, Cooperative Extension Service* (1963).
Doris John Huzzey, B.A., M.A., *Instructor in English* (1955).
Betty Jo Hypes, B.S., M.A., *Instructor in English* (1960), 1956.
Harold Marteney Hyre, B.S., M.S., *Associate Professor of Poultry Science; Associate Poultry Geneticist, Agricultural Experiment Station* (1944), 1931.
Robert Lee Iden, *Production Manager, Office of Publications* (1961).
Stanley Oliver Ikenberry, B.A., M.A., Ph.D., *Assistant to the Provost; Assistant Professor of Education* (1962).
Morris Ingle, A.B., M.A., Ph.D., *Assistant Professor of Horticulture; Assistant Horticulturist, Agricultural Experiment Station* (1963).
Vernon Kimble Ira,* B.S., *County Agent, Cooperative Extension Service* (1952).
Thomas Stanley Isaack, B.B.A., M.B.A., D.B.A., *Professor of Management* (1960), 1951.

LINDA PETERS ISAACS, *Head Technologist, Clinical Laboratories, University Hospital* (1963), 1962.
WILLIAM GLENN ISNER, B.S., M.S., *Instructor* (part-time) *in Chemistry* (1962). (Resigned January 31, 1963).
NANCY ANN JACKSON, R.N., B.S., *Instructor in Pediatric Nursing* (1962).
NORMAN D. JACKSON, B.S.F., M.W.T., *Assistant Professor of Wood Technology; Assistant Forester, Agricultural Experiment Station* (1961), 1953.
DAVID WOOD JACOBS, A.B., *Executive Secretary, Alumni Association* (1938).
VERNON RHODES JAMES, *Lecturer in Journalism* (1953).
KATHIRENE MAE JAMISON, A.B., *Counselor to Women* (1962), 1958.
JAN WALTER JANSSEN, LT.COL., B.S., *Director of Education and Training, Air Science* (1962).
ARRETA LEE JARANKO, A.B., M.A., *Instructor* (part-time) *in Education* (1963), 1962.
WALTER H. JARECKE, B.S.ED., M.ED., ED.D., *Professor of Education; Coordinator, Counselor Training* (1949).
OLEG JEFIMENKO, B.A., M.A., PH.D., VORDIPLOM, *Associate Professor of Physics* (1960), 1956.
EVERETT MILTON JENCKS, B.S., PH.D., *Assistant Professor of Agronomy; Assistant Agronomist, Agricultural Experiment Station* (1957).
CHARLES R. JENKINS, B.S., M.S., *Assistant Professor of Sanitary Engineering* (1961).
GERALD JENNY, M.S., *University Editor* (retired) (1963), 1929.
BONNIE GEOY JOEHNK, B.M., M.M., *Instructor in Music* (1962).
BRUCE M. JOHN,* B.S., M.S., *State Extension Rural Sociology Specialist, Cooperative Extension Service* (1963).
CARL EDWARD JOHNSON, A.B., B.S., M.D., *Assistant Clinical Professor of Medicine* (1961), 1940.
CLYDE EDGAR JOHNSON, A.B., M.S., *Research Assistant in Animal Industry and Veterinary Science* (1963), 1957.
JAMES E. JOHNSON,* B.S., *County Extension 4-H Agent* (1948).
JAY EWERS JOHNSON, JR., B.S., M.B.A., C.P.A., *Assistant Professor of Accounting* (1961), 1956.
JOHN ROBERT JOHNSON, B.S., M.S., *Research Assistant in Animal Industry and Veterinary Science* (1960).
MELVIN WALTER JOHNSON, JR., B.S., M.S., PH.D., *Associate Professor of Agronomy; Associate Agronomist, Agricultural Experiment Station* (1960), 1956.
OLIVER WILLIAM JOHNSON,* B.S., *County Agricultural Agent, Cooperative Extension Service* (1935).
ROBERT JOSEPH JOHNSON, M.D., *Professor and Chairman of Gross and Neurological Anatomy* (1957).
STANCIL E. D. JOHNSON, A.B., M.D., *Instructor in Psychiatry* (1963).
BELMA B. JOHNSON,* B.S.H.E., *County Extension Home Demonstration Agent, Cooperative Extension Service* (1935).
WILLIAM ERNEST JOHNSON, A.B., LL.B., *Director of Continuing Legal Education* (1963).
JOHN HUBERT JOHNSTON, B.A., M.A., PH.D., *Assistant Professor of English* (1960), 1954.
WILLIAM PAUL JOHNSTON,* B.S., *County Agent, Cooperative Extension Service* (1950), 1949.
NELL JOINER, R.N., B.S., B.A., *Instructor in Maternity Nursing* (1961).
BARBARA JONES, A.B., M.D., *Associate Professor of Pediatrics* (1963), 1961.
EDWIN CHANNING JONES, P.E., B.S.E.E., M.S.E.E., *Professor and Chairman of Electrical Engineering; Electrical Engineer, Engineering Experiment Station* (1948), 1925.
ERNEST LEWIS JONES, A.B., M.A., *Assistant Director of Computer Center* (1963), 1955.
JOHN EVAN JONES, B.S., M.D., *Assistant Professor of Medicine* (1963), 1960.
MARIAN LOUISE JONES, B.S., *Instructor* (part-time) *in Biology* (1963).
MARY JANE JONES,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1954).
MARY ROSE TAYLOR JONES, B.S., M.S., *Associate Professor of Home Economics* (1959), 1941.

Owen Lloyd Jones, A.B., M.S., *Instructor in Chemistry* (1960), 1957.
Paul Russell Jones, P.E., B.Cer.E., M.S., *Professor of Ceramic Engineering* (1957), 1947.
Ruth K. Jones,* B.S., M.S., *Clothing Specialist, Cooperative Extension Service* (1946), 1941.
Jane Esther Jordan, A.B., *Medical Dietitian, University Hospital* (1962).
Theodore M. Judy, A.B., *Assistant Librarian, Medical Center Library* (1963), 1959.
Gerald Alvin Jung, B.S., M.S., Ph.D., *Associate Professor of Agronomy; Associate Agronomist, Agricultural Experiment Station* (1963), 1958.
Bahman Kameh, M.D., *Third Year Resident in Obstetrics and Gynecology* (1963).
Alfred N. Karickhoff, A.B., M.D., *Intern, University Hospital* (1963).
William K. Katz, B.S., M.S., *Assistant Professor of Education; Chairman, Undergraduate Elementary Education* (1959).
Barry Jay Keagy, B.S.M.E., *Instructor in Mechanical Engineering* (1961). (Resigned May 31, 1963).
Louise Keener, B.A., *Comptroller and Director of Business Affairs* (1954), 1929.
Elmer Ellsworth Kelln, B.S., D.D.S., M.S.D., *Associate Professor of Oral Pathology* (1960).
Anna Mary Kelly, *Librarian, College of Law* (1959), 1958.
Warren George Kelly, B.S.Agr., M.S.Agr., *Assistant Professor of Agricultural Education* (1957). (On Leave of Absence September 1, 1963 to July 31, 1964).
Emory Leland Kemp, B.S., M.S., Ph.D., *Associate Professor of Civil Engineering* (1962).
Claude Ray Kemper,* B.S.Agr., M.S.Agr., *District Extension Agricultural Supervisor, Cooperative Extension Service* (1955), 1946.
Eddie Clifton Kennedy, A.B., A.M., D.Ed., *Professor of Education; Coordinator, Reading Center* (1960), 1953.
Alexander Donovan Kenny, B.S., M.S., Ph.D., *Associate Professor of Pharmacology* (1959).
James Albert Kent, P.E., Ph.D., *Associate Director, Engineering Experiment Station; Professor of Nuclear Engineering* (1963), 1954.
Harold Neely Kerr, A.B., M.Litt., Ph.D., *Associate Professor of Sociology* (1959), 1946.
Kirklyn McNeer Kerr, B.S., D.V.M., *Research Associate in Animal and Veterinary Science* (1962).
Robert Vaughn Kerwood, B.S., M.S., *Assistant Professor of Agricultural Education* (1963).
A. Lynn Keyser, A.B., *Instructor in Civil Defense, University Extension* (1963).
Harold Edward Kidder, B.S., M.S., Ph.D., *Professor of Animal Science; Animal Husbandman, Agricultural Experiment Station* (1960), 1954.
George Smith King, Jr., B.S., M.S., *Instructor in Physical Education; Head Basketball Coach* (1960), 1958.
Frank Eugene Kirby, B.A., Ph.D., *Assistant Professor of Music* (1961). (Resigned August 22, 1963).
John Curtis Kite, B.S.M.E., M.S., *Assistant Professor of Military Science* (1963).
Evans Lee Kline, B.S.E.E., *Instructor in Electrical Engineering* (1961). (Resigned May 31, 1963).
William Gene Klingberg, A.B., M.D., *Professor and Chairman of Pediatrics* (1960).
John Oliver Knapp, B.S.Agr., *Acting Dean, College of Agriculture, Forestry and Home Economics* (1963), 1917.
John Alfred Koburger, B.S., M.S., Ph.D., *Assistant Professor of Bacteriology; Assistant Bacteriologist, Agricultural Experiment Station* (1962).
Christian Burdick Koch, B.S.F., M.S.F., *Assistant Professor of Forestry; Assistant Wood Technologist, Agricultural Experiment Station* (1955), 1951.
Evelyn Maude Kocher, B.A., B.S.L.S., M.S.L.S., *Senior Catalogue Librarian* (1958).
Walter Allos Koehler, B.S.Ch.E., Ch.E., M.S., Ph.D., *Director, Engineering Experiment Station; Associate Dean, College of Engineering* (retired) (1963), 1924.
Moosa Kohanim, M.D., *Resident in Surgery* (1963).
Donald Maurice Koppel, B.S., M.D., *Clinical Instructor* (part-time) *in Medicine* (1960).

Reginald Frederick Krause, A.B., B.S., M.S., Ph.D., M.D., *Professor and Chairman of Biochemistry* (1951).

Frances Catherine Krauskopf, A.B., A.M., Ph.D., *Assistant Professor of History* (1956). (Resigned July 1, 1963).

John Belshaw Kreer, B.S.E.E., M.S.E.E., Ph.D., *Professor of Electrical Engineering* (1960), 1959.

Herbert C. Kriesel, B.S., *Research Associate, Agricultural Experiment Station* (1962).

Helen Louise Kudla, B.S., *Head Nurse, University Health Service* (1957), 1950.

Don Lee Kulow, B.S., M.F., *Assistant Professor of Forest Mensuration* (1963).

Blanche Harmison Kuykendall, R.N., *Circulation Assistant, Medical Center Library* (1962), 1956.

Margaret Cornelia Ladwig, A.B., Ed.M., Ph.D., *Placement Advisor* (1952), 1949.

Hope O. Lafferty, R.N., *Nurse, University Health Service* (1962), 1945.

Steve Jackson Lahoda, A.B., *Research Associate, Computer Center* (1963), 1962.

Richard Willoughby Laird, B.S.E.M., M.S.E.M., *Associate Professor of Mining Engineering* (1953), 1947.

Carlos Miguel Lajara, M.D., *Chief Resident in Pathology* (1963), 1961.

Bernice Leil Lambert, *Social Director* (retired), *Women's Residence Hall* (1962), 1952.

Joseph F. Lambert, B.A., M.S., Ph.D., *Professor and Chairman of Philosophy and Religion* (1963).

John Robert Lang, Jr., B.S.E.E., *Instructor* (part-time) *in Electrical Engineering* (1963).

Janet Belle Lang, R.N., *Head Nurse, University Hospital Recovery Room* (1961).

Eugene Schrae LaPlante, B.S., M.D., *Resident in Surgery* (1963).

Werner A. Laqueur, M.D., *Assistant Clinical Professor of Pathology* (1961).

Beatrice B. Law, A.B., M.A., *Instructor in English* (1949).

John Joseph Lawless, B.S., M.A., Ph.D., M.D., *Director, University Health Service; Associate Professor of Medicine* (1944), 1935.

William Lawson, B.S., *Instructor in Physical Education* (1963).

Charles Lester Lazzell, A.B., M.S., Ph.D., *Professor of Chemistry* (1961), 1919.

Julian Gilbert Leach, B.S.A., M.S., Ph.D., *Professor of Plant Pathology; Plant Pathologist, Agricultural Experiment Station* (1960), 1938.

Jerry Leroy Lease,* B.S.Agr., *Assistant County Agent, Cooperative Extension Service* (1962).

Gordon Leslie Leckie, B.S.J., *Assistant Director, University News and Information Services* (1961).

Sandra Sturm Leckie, A.B., M.A., *Instructor* (part-time) *in English* (1963).

Marvin Robert Lee, B.S., M.A., *Instructor in Education; Field Director* (part-time), *Council on Economic Education; Director, Conservation Education Workshop* (1956).

Gerald Lefkoff, B.S., M.M., Ph.D., *Assistant Professor of Music* (1961).

Victor Jacob Lemke, B.A., M.A., Ph.D., *Professor of German* (1955), 1939.

Jessie Fortney Lemley,* B.S.H.E., *District Extension Home Demonstration Supervisor, Cooperative Extension Service* (1951), 1942.

Joseph William Leonard, B.S., M.S., *Director, Coal Research Bureau* (1961).

Nell Lanhan Leonian, B.S.H.E., A.M., *Instructor in English* (retired) (1963), 1931.

Howard Mason Lester,* B.S., *County 4-H Agent, Cooperative Extension Service* (1962).

Arnold David Levine, B.E.E., A.M., Ph.D., *Assistant Professor of Physics* (1962), 1957.

Mortimer Levine, B.A., A.M., Ph.D., *Associate Professor of History* (1961), 1955.

Catherine Mary Lewis, B.A., *Instructor in Art, Parkersburg Branch* (1962). (Resigned September 1, 1963).

Howard Lee Lewis, B.S.J., M.A., *Administrative Assistant to Vice President—Medical Center* (1962), 1959.

Olive Dinsmore Lewis, B.A., B.S., *Assistant Professor of Library Science* (1962).

Dennis R. Leyden, B.S., *Assistant Professor of Economics* (1962).
Burkey Lilly,* B.S., M.S., *County Agent, Cooperative Extension Service* (1958), 1954.
Virgil Greene Lilly, A.B., M.A., Ph.D., *Professor of Physiology; Physiologist, Agricultural Experiment Station* (1949), 1927.
Hugh Alexander Lindsay, B.S., M.S., Ph.D., *Associate Professor of Physiology* (1960), 1955.
Harry Teter Linger, B.A., M.D., *Clinical Instructor in Surgery* (1962).
Benjamin Linsky, P.E., B.S.M.E., M.S.E., *Professor of Sanitary Engineering* (1963).
Richard S. Little, A.B., M.A., Ph.D., *Assistant Professor of Geography* (1962).
Stanley H. Livingstone, A.B., *Coordinator, Office of Civil Defense, University Extension* (1963).
Tanner Johnson Livisay,* B.S., M.S., *State Extension Child Development and Human Relations Specialist, Cooperative Extension Service* (1963), 1942.
German Lizarralde, M.D., *Third-Year Resident in Medicine* (1961), 1960. (Resigned July 1, 1963).
David Lloyd, B.M., *Professor of Music* (1963).
Mary Ann Loar, B.S., *Social Director, Terrace Residence Hall* (1962).
Robert L. Lochmueller, B.S., M.S., *Instructor in Physical Education; Assistant Basketball Coach* (1961).
Thomas Anthony Loftus, A.B., M.D., *Professor and Chairman of Psychiatry* (1961). (Resigned June 30, 1963).
Andrew Fleming Long, Jr., B.S.E.E., M.S., *Instructor* (part-time) *in Mathematics* (1963).
J. Everett Long, A.B., A.M., *Registrar of the University* (retired) (1963), 1929.
Thomas Richard Long, B.S.M.E., M.S.M.E., *Instructor in Mechanical Engineering* (1958).
Alfred Delbert Longhouse, P.E., B.S., M.S., Ph.D., *Professor and Chairman of Agricultural Engineering; Agricultural Engineer, Agricultural Experiment Station* (1945), 1938.
Willard Dean Lorensen, B.A., LL.B., LL.M., *Associate Professor of Law* (1959).
Frank Edell Lorince, Jr., B.M., M.M., *Assistant Professor of Music; Acting Chairman, Theory and Composition Department* (1960), 1950.
Margaret Scott Lorince, B.M., M.M., *Chairman, Preparatory Department in Music* (1963).
Frederick Jackson Lotspeich, B.S., M.S., Ph.D., *Associate Professor of Biochemistry* (1959), 1956.
Wilma Jean Loudin, B.S., M.S., *Instructor in Mathematics* (1960), 1955.
David Howard Rienheart Loughrie, LL.B., *Teacher, University High School* (1963).
Betholene Frances Love, B.S., M.S., M.T.,(A.S.C.P.), *Associate Professor and Associate Director of Medical Technology* (1962), 1955.
Julia Harrington Lowery,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1943).
John Luther Loyd,* B.S., *County 4-H Agent, Cooperative Extension Service* (1956).
William Henry Loyd, B.S.M.E., M.S.M.E., *Instructor* (part-time) *in Mechanical Engineering* (1963).
Charles DeForrest Lucas, B.S., M.S., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1962).
Russell Vail Lucas, Jr., B.A., M.D., *Assistant Professor of Pediatrics* (1961).
John Luchok, B.S.J., *University Editor* (1953), 1950.
Wayne Wesley Luchsinger, B.S., M.S., Ph.D., *Associate Professor of Biochemistry; Associate Biochemist, Agricultural Experiment Station,* (1960).
John Charles Ludlum, B.S., M.S., Ph.D., *Director, Office of Research and Development, Appalachian Center; Professor of Geology* (1962), 1946.
Mildred Wells Ludlum, B.S., *Acquisitions Assistant* (part-time), *Medical Center Library* (1962), 1959.
Theodore F. Ludwig, A.B., D.D.S., M.S., *Instructor in Operative Dentistry* (1963).
Perry H. Lueders, B.A., M.F.A., *Instructor in Speech* (1963).
Marlyn Edward Lugar, A.B., LL.B., J.S.D., *Professor of Law* (1951), 1939.

Virginia Gilmore Luikart, B.S., *Library Circulation Assistant* (retired) (1962), 1930.

Wesley Lynch,* B.S., M.S., *State Extension Agricultural Program Development Leader, Cooperative Extension Service* (1961), 1949.

Rogers McAvoy, B.A., M.A., *Instructor in Education* (1961).

James Leonard McBee, Jr., B.S., M.S., Ph.D., *Assistant Professor of Animal Science; Assistant Animal Husbandman, Agricultural Experiment Station* (1959).

Arthur Cook McBride, A.B., A.M., Docteur de l'Universite de Bordeaux, *Professor of Romance Languages* (1960), 1926.

Francis Hill McClung, B.S., M.S., *Assistant Professor of Education, University Extension Division* (1956).

Harry B. McClung, A.B., M.S., *Instructor in Mathematics* (1962), 1957.

Joseph Dwight McClung, B.S.E.E., B.S.E.M., M.S.E.M., *Associate Professor of Mining Engineering* (1961), 1941.

Robert Loren McCourt, *Assistant Supply Sergeant, Military Science* (1963).

Harriet Wright McCoy,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1954).

Ernie Bevan McCue, A.B., M.A., *Director of University and Labor Extension* (1952), 1947.

John J. McCutchen, M.D., *Research Assistant in Neurosurgery* (1962).

Ahthur Dennis McCutcheon,* B.S., B.R.E., *County Agent, Cooperative Extension Service* (1961).

Emma Williamson McCutcheon, *Social Director, Arnold Residence Hall* (1957), 1955.

Mary Adeline McDaniel, A.B., M.A., *Administrative Assistant, Office of the President* (1957), 1941.

James Harry McElhaney, P.E., B.M.E., M.S.M.E., *Research Associate in Mechanical Engineering* (1962).

Elizabeth Adams McEnney, B.M., M.M., *Assistant Professor of Music* (1949).

James Edward McEwuen, B.S., *Electronics Technician, Medical Center* (1963).

Oliver Claude McGhee, B.S., M.S., *Assistant Professor of Agricultural Education* (1961).

Mary G. McGowan, *Supervisor of Admissions* (1963), 1961.

Bernard Ronald McGregor, B.S.Ed., M.F.A., *Assistant Professor of Music* (1950), 1935.

Kenneth Dale McIntosh, B.S., M.S., *Assistant Professor of Agricultural Economy; Assistant Agricultural Economist, Agricultural Experiment Station* (1957).

David Edward McKee, B.S.M.E., M.S.E., *Instructor in Mechanical Engineering* (1963).

Gaynelle McKinney, R.N., B.S., M.S., *Assistant Professor of Medical-Surgical Nursing* (1961).

Lois Jane McKinney, B.S., *Employment Supervisor, Personnel Office* (1960). (Resigned September 15, 1963).

George Aiken McLaren, B.S., M.S., Ph.D., *Professor of Animal Nutrition; Nutritionist, Agricultural Experiment Station* (1963), 1955.

Earl Glen McLaughlin, A.B., M.A., *Instructor in Education* (1959). (Resigned September 1, 1963).

William H. McMillion, B.S., M.S., *Assistant Comptroller* (1958), 1952.

Virginia Sue McMullen, B.S., *Instructor* (part-time) *in Chemistry* (1962).

Ronald Bruce McPherson, B.S.C.E., M.S.C.E., *Instructor in Civil Engineering* (1962), 1960. (Resigned May 31, 1963).

Ruth T. McPherson,* A.B., *County 4-H Agent, Cooperative Extension Service* (1961), 1953.

Joseph Richard McProuty, A.B., M.D., *Associate Professor of Radiology* (1961).

Thomas Lowry McVey, *X-Ray Technician, University Hospital* (1963).

Robert F. McWhorter, B.S., M.S., *Director, Mountainlair* (1959).

Denis William MacDowell, B.S., M.D., Ph.D., *Assistant Professor of Chemistry* (1959).

Sam Madia, B.S., M.A., *Instructor in Education; Teacher, University High School* (1955).

Dona Arlene Madison, *X-Ray Technician in Radiology* (1963).
John Friend Mahoney, B.S., M.S., Ph.D., *Assistant Professor of Chemical Engineering* (1960).
Larry Edward Maisel, B.S.J., *Teaching Assistant in Journalism* (1963).
Dorothy Mae Major, R.N., B.S., M.A., Ed.D., *Dean, School of Nursing; Professor of Nursing* (1960).
Hisham Salim Majzoub, B.S., M.D., *First Year Resident in Surgery* (1961).
Iris J. Mankins, B.A., M.A., *Instructor in English* (1963).
Warren Francis Manning, A.B., A.M., Ph.D., *Professor of Romance Languages; Fulbright Adviser* (1952), 1928.
Martin Matheny Mansperger, B.S., M.A., *Associate Professor of Education, University Extension Division* (1962), 1952.
Emil Louis Mantini, B.A., M.S., M.D., *Instructor in Surgery* (1963), 1960.
James Clifford Markel, B.S., M.S., *Assistant Professor of Physical Education; Swimming and Soccer Coach* (1961). (Resigned July, 1963).
Mary DiTosto Marockie, B.S., M.A., *Instructor in Education* (1962), 1961.
Ray Stanley Marsh, B.S.Agr., A.M., *Professor of Horticulture; Horticulturist, Agricultural Experiment Station* (1960), 1936.
Robert James Marshall, M.D., M.R.C.P.I., M.R.C.P., *Professor of Medicine* (1963), 1961.
Glenn Fayette Martin, *Instructor in Industrial Engineering* (1940).
Hubert E. Martin, A.B., D.D.S., *Clinical Instructor in Dentistry* (1961).
Linda Lea Martin, R.N., *Head Nurse, Psychiatry Station* 21 (1963), 1961.
Thomas J. Martin, B.S., D.D.S., *Instructor* (part-time) *in Crown and Bridge Dentistry* (1961).
William Gilbert Martin, B.S., M.S., Ph.D., *Instructor in Poultry Science; Assistant in Agricultural Biochemistry* (1963), 1958.
Ross Maruka, A.B., M.A., LL.B., *Assistant Professor of Law* (1962), 1958. (Resigned June 1, 1963).
Carmine Charles Mascoli, B.S., M.S., Ph.D., *Associate Professor of Microbiology* (1963), 1960.
W. Annette Massey, R.N., B.S., M.S.N., *Assistant Professor of Psychiatric Nursing* (1961).
Keith L. Massie, B.S.E.E., *Broadcast Engineer, Department of Radio, Television and Motion Pictures* (1963).
Eugene Anthony Mattis, A.B., *Visiting Assistant Professor of Economics* (1962).
S. Samuel Maurice, B.A., M.S., Hlth&Saf Dirs., *Assistant Professor of Physical Education; Director of Intramural Activities; Soccer Coach* (1958).
Robert Shriver Maust, B.S., M.S., *Assistant Professor of Accounting* (1963), 1959.
Charles Boyd Maxwell,* *County 4-H Agent, Cooperative Extension Service* (1948).
George Ralph Maxwell, B.S., M.D., *Clinical Associate Professor of Medicine* (1961), 1924.
Boleslaw Mazur, B.S., M.S., D.D.S., *Assistant Professor of Crown and Bridge Dentistry* (1961).
Anita C. Mazzocco, R.N., *Registered Nurse, Treatment Room, University Health Service* (1962). (Resigned January 31, 1963).
Victor E. Mazzocco, A.B., B.S., M.D., *Resident in Medicine* (1962).
Margaret M. Meador,* B.S., *County Home Demonstration Agent-in-Training, Cooperative Extension Service* (1963).
Charles Robert Means, Maj., B.S., *Associate Professor of Military Science and Rifle Team Coach* (1959). (Resigned July 29, 1963).
Philip Gene Meikle, B.S.E.M., *Research Engineer, Bureau of Coal Research* (1963).
Kenneth Robert Meine, B.M., *Instructor* (part-time) *in Music* (1962). (Resigned May 31, 1963).
Raj Gopal Mendiratta, Ph.D., *Assistant Professor of Physics* (1963).
Catalino B. Mendoza, M.D., *Instructor in Surgery* (1963).
Henry F. Mengoli, B.A., M.S., Ph.D., *Instructor and Head of Cancer Research Laboratory* (1963).
Jane Orr Metz, B.S., Phys. Therap., *Staff Physical Therapist, University Hospital* (1960).

DAYTON JULIAN MICHAEL,* B.S.AGR., *County Agent, Cooperative Extension Service* (1963).
DONALD LEE MICHAEL, B.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1961). (Resigned July 19, 1963).
ROBERT EDWIN MICHAEL, B.S.E.E., *Instructor* (part-time) *in Electrical Engineering* (1963).
ANNETTE MIGNOGNA, R.N., *Assistant Pediatric Supervisor, University Hospital* (1960).
LI CHUN MIH, B.S., M.S., PH.D., *Research Engineer in Coal Research Bureau* (1962).
MARGARET SUE MIKEAL, R.T., *Dental Laboratory Technician* (1962), 1961.
D. FRANKLIN MILAM, A.B., B.S., M.D., *Professor of Urology,* (1960).
FRENCH LOVETT MILES,* B.S.AGR., *County Agent, Cooperative Extension Service* (1961), 1922.
BETTY LOUISE MILLER, B.S.CH.E., M.S., *Instructor in Mathematics* (1957).
DELMAS FERGUSON MILLER, A.B., M.S., PH.D., *Professor of Education; Chairman, Department of Secondary Education; Director, University High School* (1958), 1949.
ELMO W. MILLER,* B.S., M.S.AGR., *State Extension Rural Civil Defense Leader, Cooperative Extension Service* (1963), 1954.
LAWRENCE SAMUEL MILLER, B.A., M.D., *Assistant Professor of Orthopedic Surgery* (1960).
LEROY D. MILLER, B.S., M.H.A., *Assistant Director, University Hospital* (1963), 1961.
PAUL AUSBORN MILLER, B.S., M.A., PH.D., LL.D., *President of the University; Professor of Sociology* (1962), 1938.
FREDERICK WILLIAM MILTENBERGER, B.S., M.D., *Resident in Surgery* (1961).
JAMES EDWARD MILTENBERGER, B.M., M.M., *Instructor in Music* (1962).
RICHARD ALLEN MILUM, B.S., M.A., *Instructor in English* (1961).
WILLIAM SHERMAN MINOR, A.B., D.B., *Associate Professor of Philosophy* (1946).
MICHAEL K. MISCHAIKOW, M.A., PH.D., *Associate Professor of Economics* (1960).
EUGENE HILL MITCHELL,* B.S., M.S., *County Agent, Cooperative Extension Service* (1949).
KATHLEEN AYRES MITCHELL, STD.NORM., *Social Director, Women's Hall* (1942), 1940.
RALPH GERALD MITCHELL, B.S., M.S., PH.D., *Associate Professor of Dairy Science; Associate Daily Scientist, Agricultural Experiment Station* (1960), 1957.
CHARLES ERNEST MODLIN, B.A., M.A., *Instructor in English,* (1960).
ZA-LEE MOH, B.S.C.E., M.S.C.E., PH.D., *Associate Professor of Civil Engineering* (1962), 1961.
ROYCE LEE MONTGOMERY, B.A., M.S., PH.D., *Instructor in Gross and Neurological Anatomy* (1963).
ETHEL C. MONTIEGEL, B.A., M.S., *Instructor in Biology* (1956).
ELLIS EDWIN MOOD, *Flight Instructor in Aerospace Engineering* (1956).
BYRON WAYNE MOORE,* B.S.AGR., *State Extension Poultry Specialist, Cooperative Extension Service* (1962), 1947.
DANE W. MOORE, JR., B.S., M.S., M.T. (A.S.C.P.), *Instructor in Medical Technology; Chief Technologist in Microbiology* (1962), 1955.
WALTER HARRISON MORAN, JR., B.A., B.S., M.D., *Assistant Professor of Surgery* (1963), 1960.
BERNICE CAROLYN MORGAN, R.N., *Central Supply Service Supervisor, University Hospital* (1962), 1960.
DAVID ZACKQUILL MORGAN, B.S., M.D., *Instructor and Medical Director of Out-Patient Department, University Hospital* (1963), 1953.
LILLIE W. MORGAN, A.B., A.M., *Teacher, University High School* (1962).
ARTHUR LEWIS MORRIS, JR., A.B., *Assistant to the Comptroller* (1963), 1960.
BARBARA JEAN MORRIS, R.N., *Head Nurse, Station* 51, *University Hospital* (1960).
JOSEPH L. MORRIS,* B.S., M.S.AGR., *District Extension Agricultural Supervisor, Cooperative Extension Service* (1955), 1954.
SAMUEL J. MORRIS, M.D., *Professor Emeritus of Physical Education* (1955), 1912.
WILLIAM O. MORRIS, A.B., LL.B., *Professor of Law* (1960), 1958.

Richard Harvey Morrison, B.S., M.S., *Instructor in Chemistry* (1959).
John William Moser, Jr.,* B.S.F., M.S.F., *State Extension Forestry Specialist, Cooperative Extension Service* (1963).
Anna Moson, R.N., B.S.N.Ed., M.Litt., *Medical Nursing Supervisor* (1962).
Joe Francis Moss, A.B., M.A., *Instructor in Art* (1960).
Lyle Kimball Moulton, B.S.C.E., M.S.C.E., *Instructor in Civil Engineering* (1963).
George Camden Mouser,* B.S., M.S., *County Agent, Cooperative Extension Service* (1963).
Wendell William Moyer, Jr., A.B., Ph.D., *Assistant Professor* (part-time) *of Chemistry, Parkersburg Branch* (1962). (Resigned September 1, 1962).
Mildred Iona Moyers, A.B., M.A., M.S.L.S., *Chief Acquisition Librarian* (1959), 1955.
Caroline Turton Mudd, B.S., M.S.W., *Assistant Professor of Social Work* (1957).
Beth Palmer Muffly, B.S., M.S., *Assistant Professor* (retired) *of Home Economics* (1957), 1927.
Foster Glenn Mullenax,* B.S.Agr., *State Extension Radio-Television Editor, Cooperative Extension Service* (1953), 1950.
James M. Mullendore, B.S., M.A., Ph.D., *Professor of Speech* (1963).
Robert Ferguson Munn, A.B., M.A., Ph.D., *Director of Libraries; Professor and Chairman of Library Science* (1957), 1952.
Anita Marie Munson, B.S., *Medical and Clinic Dietitian, University Hospital* (1962).
Glenn Aubrey Murdock, *Administrative Assistant, Physical Plant* (1962).
Barbara JoAnn Murphy, B.S., *Head Nurse, Obstetrics, University Hospital* (1962).
Sondra Jean Murray, *Research Assistant, Department of Animal Industry and Veterinary Science* (1963), 1961.
William Lester Musladin, Maj., B.S., M.S., *Assistant Professor of Air Science* (1962).
Robert Styring Mutch, B.S., M.D., *Clinical Instructor* (part-time) *in Medicine* (1961).
Chester William Muth, B.S., Ph.D., *Professor of Chemistry* (1963), 1949.
Galen Sheets Myers,* B.S.Agr., M.S., *District Extension Agricultural Supervisor, Cooperative Extension Service* (1952), 1935.
Marian E. Myers,* B.S., *County 4-H Agent, Cooperative Extension Service* (1954).
Richard George Nadeau, B.S., M.S., *Research Assistant in Agricultural Biochemistry* (1962), 1958.
Skurinder Kumar Nanda, B.S., D.D.S., M.S., *Instructor in Dentistry* (1963).
Victor Mario Napoli, M.D., *Assistant Professor of Pathology* (1962), 1961.
Oliver Meader Neal, Jr., B.S., Ph.D., *Professor of Horticulture; Horticulturist, Agricultural Experiment Station* (1963), 1942.
Charles David Neel, B.A., M.A., *Instructor in Speech; Studio Theatre Supervisor* (1960).
Elizabeth Brownfield Neel, *Administrative Assistant, Library* (1949), 1936.
William Wallace Neel, B.A., M.S., Ph.D., *Assistant Professor of Entomology; Assistant Entomologist, Agricultural Experiment Station* (1963).
Robert Hudkins Neff, B.S., M.S., Ed.D., *Assistant Professor of Education; Coordinator of Special Education* (1962), 1955.
Stanley John Nels, B.S.J., *Associate University Editor* (1961), 1951.
Donald Earl Nelson, B.S., M.W.T., *Instructor in Wood Technology* (1961).
John W. Nelson, A.B., M.D., *Assistant Professor of Medicine; Chairman of Neurology* (1961). (Resigned June 30, 1963).
Phyllis Harper Nelson, B.S.H.E., M.S., *Assistant Medical Director, Dietetic Department, University Hospital* (1960).
Reid Marvin Nelson, B.S.I.E., *Instructor in Industrial Engineering* (1961).
Ernest Joseph Nesius,* B.S.Agr., M.S.Agr., Ph.D., *Vice President—West Virginia Center for Appalachian Studies and Development; Director, Cooperative Extension Service* (1963), 1960.
Paul Emmett Nesselroad, B.S., M.S., *Assistant Professor of Agricultural Economics; Assistant Agricultural Economist, Farm Management, Agricultural Experiment Station* (1959), 1954.

JOSEPH NEWHOUSE, B.S., M.S., *Assistant Professor of Economics and Finance; Pre-Commerce Adviser* (1962), 1955.
DAVID CREEL NICHOLS, JR., B.S.J., M.A., *Research Assistant, Office of the President; Instructor* (part-time) *in English* (1962), 1959.
BETTY JUNE NICHOLSON, *Assistant Night Supervisor, University Hospital* (1962), 1961.
E. GRANT NINE, A.B., M.A., *Instructor in Education; Principal, University High School* (1960), 1956.
EMMA GERALDINE NOW,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1956).
WILDA HOARD NOEL, B.S.H.E., *Executive Housekeeper and Dietitian, Arnold Residence Hall* (1956), 1954.
RUTH DOUGLAS NOER, B.S., M.S., *Professor of Home Economics* (retired) (1960), 1925.
FRANCENA L. NOLAN, B.S., M.S., PH.D., *Director, Division of Home Economics; Professor of Home Economics* (1961).
CHARLES NORMAN, B.S., M.S., PH.D., *Professor of Biology; Dairy Scientist, Agricultural Experiment Station* (1961), 1953.
WILLIAM LAURUS NORTHERN,* B.S., M.AGR., *State Extension Dairy Specialist, Cooperative Extension Service* (1962), 1951.
DAVID W. NORTHUP, A.B., A.M., PH.D., *Professor and Chairman of Physiology* (1949), 1935.
ROBERT JULIAN NOTTINGHAM, B.S., M.D., *Assistant Professor of Pediatrics* (1963), 1960.
G. ROBERT NUGENT, A.B., M.D., *Assistant Professor of Surgery* (1961).
ROBERT GRAY NUNLEY, A.B., M.A., *Instructor in Biology* (1963).
ELIZABETH ANN O'CONNELL, R.N., B.S.N., M.S.N., *Professor and Chairman of Maternal-Child Nursing* (1963).
FRANK DENNIS O'CONNELL, B.S., M.S., PH.D., *Associate Professor of Pharmacognosy* (1962), 1957.
JOHN SCOTT OEHRLE, A.B., M.D., *Intern, University Hospital* (1963).
ROBERT GARWOOD OGILUIE, B.S., D.D.S., *Junior Resident in Oral Surgery* (1963), 1961.
LOIS E. O'KELLEY, R.N., B.S.N., M.S.N., *Assistant Professor of Medical-Surgical Nursing* (1963).
JAMES PIERCE O'LEARY, JR., B.M.E., *Instructor in Mechanical Engineering* (1960). (Resigned May 31, 1963).
ROBERT JOHN O'LEARY, D.D.S., *Intern in Oral Surgery* (1963).
JOSEPH EDWARD OLIVER, B.A., M.D., *Instructor in Psychiatry* (1962). (Resigned August 31, 1963).
FARREL JOHN OLSEN, JR.,* B.S., M.S., PH.D., *State Extension Agronomy Specialist, Cooperative Extension Service* (1961).
NORMAN OLAF OLSON, D.V.M., *Professor of Veterinary Science; Veterinarian, Agricultural Experiment Station* (1948).
J. ESTELLE O'MALLEY, R.N., *Nurse, University Health Service* (1960).
ELIZABETH JANE OMAN, B.A., *Teacher, University High School* (1962).
DONALD MYRON ONYSKO, B.S.C.E., D.I.C., *Instructor* (part-time) *in Civil Engineering* (1963).
ANGELO JOSEPH ORLANDI, B.A., M.A., *Instructor in Education* (1963), 1959.
EDWIN ORR, B.S.M.E., *Superintendent of Utilities, Physical Plant* (1961), 1949.
MIRANDA ARSENIO ORTEZA, M.D., *Resident in Surgery* (1963).
C. DANIEL O'SULLIVAN, B.S., M.S., *Assistant Director of Mountainlair* (1962).
LESTER LYNN OURTH, M.A., PH.D., *Assistant Professor of Psychology* (1962).
JAMES EDWIN OVERBERGER, B.S., M.S., D.D.S., *Associate Professor of Dental Materials* (1962), 1957.
MARY NADINE PAGE, M.A., *Assistant Professor of English* (1946), 1925.
JOHN H. PALACIOS, B.A., M.S.S.W., *Associate Professor of Social Work* (1962).
JEROME FOREST PARMER, B.S.M.E., M.S.M.E., *Assistant Professor of Mechanical Engineering* (1960), 1957. (On leave of absence September 1, 1962 to September 1, 1964).

Dickson Ward Parsons, A.B., M.S., Ph.D., *Professor Emeritus of Agricultural Education* (1951), 1923

Kent Markwood Parsons, B.S., M.B.A., *Instructor* (part-time) *in Economics* (1963), 1961.

Joseph Pasini, III, B.S., *Instructor* (part-time) *in Petroleum Engineering* (1963).

Homer Patrick, B.S., M.A., Ph.D., *Professor and Chairman of Agricultural Biochemistry; Agricultural Biochemist, Agricultural Experiment Station* (1963), 1957.

Charles Darold Patterson, B.S., M.A., *Assistant Professor of Library Science* (1962).

Charles Edwin Patton, A.M., *Professor of Art* (1951), 1939.

Armine Deane Paul, B.S., Ph.D., *Associate Professor of Chemistry* (1961), 1955.

Helen Mary Pavlech, B.S., M.A., *Assistant in Microbiology, Medical Center* (1954), 1943.

Anthony Leo Pavlick, B.S., M.Ed., M.S., Ph.D., *Agricultural Economist, Economic Research Service, United States Department of Agriculture* (1963).

Arthur Stephen Pavlovic, B.E.E., M.S., Ph.D., *Associate Professor of Physics* (1962), 1959.

Donald H. Paynter, B.S.E.E., *Engineering Operations Manager, Department of Radio, Television, and Motion Pictures* (1962).

Mary Jane Pearse, B.A., M.S., *Instructor in Physical Education* (1961), 1958.

Roger Waterman Pease, B.S., M.S., *Assistant Agricultural Economist* (retired), *Agricultural Experiment Station* (1963), 1947.

Jeanne S. Peccianti, R.N., B.S., M.S., *Assistant Professor of Public Health Nursing* (1962).

Bonnie Allen Peck,* A.A., *County 4-H Agent, Cooperative Extension Service* (1934).

Kenneth Earl Penrod, B.S., Ph.D., *Vice-President–Medical Center; Professor of Psysiology* (1959).

Mary Joan Peoples,* A.B., *County Home Demonstration Agent-in-Training, Cooperative Extension Service* (1963).

W. Clement Percival, B.S., M.S., Ph.D., *Assistant Dean, College of Agriculture, Forestry and Home Economics; Director, Division of Forestry; Professor of Forestry; Forester, Agricultural Experiment Station* (1959), 1934.

Virginia Taylor Perry, A.B., M.A., M.S.L.S., *Chief Circulation Librarian* (1954), 1946.

Jane Rhodes Pestun, B.M., M.M., *Instructor in Music* (1945), 1942.

Iland Dee Peters, A.B., M.S., *Associate Professor of Mathematics* (1957), 1941.

Mason Marcus Peterson, P.E., B.S.E.E., *Associate Professor of Electrical Engineering* (1948).

Thelma Rose Petracca, B.S., M.T.(A.S.C.P.), *Instructor in Medical Technology* (1961).

Richard Joseph Petso, B.S., *Research Associate, Computer Center* (1963), 1962.

Helen Purinton Pettigrew, B.A., M.A., Ph.D., *Associate Professor of English* (1955), 1921.

Philip A. Phar,* B.S., M.S., *State Extension Animal Husbandry Specialist, Cooperative Extension Service* (1961).

Janet Beth Phillippi,* B.S.H.E., *County 4-H Agent-in-Training, Cooperative Extension Service* (1963).

George Richard Phillips, *Photographer, News and Information Services* (1954).

Herbert Charles Phillips, B.F.A., M.L., *Senior Research Analyst, Bureau for Government Research* (1961). (Resigned June 30, 1963).

James Edward Phillips, A.B., D.D.S., *Assistant Professor of Oral Diagnosis* (1961), 1959. (Resigned September 15, 1963).

Ross Alonzo Phillips, P.E., B.S.Agr., B.Agr.Eng'g., M.S.Agr., *Assistant Professor of Agricultural Engineering; Assistant Agricultural Engineer, Agricultural Experiment Station* (1955).

Ruth Marjory Phillips, A.B., M.D., *Assistant Clinical Professor of Pediatrics* (1961).

Edward Don Piatt, B.S., M.D., *Instructor in Medicine* (1961).

THELMA RACHEL PICKENS,* STD.NORM., *County 4-H Agent, Cooperative Extension Service* (1940).
JUSTUS COURTLAND PICKETT, B.S., M.D., *Clinical Professor and Chairman of Orthopedic Surgery* (1960).
GORDON MARSHALL PITTS, B.A., M.A., PH.D., *Assistant Professor of English* (1960).
CHARLES LLOYD PITZER, JR., A.A., B.A., M.S., *Instructor* (part-time) *in Chemistry* (1962).
HELEN LESTER PLANTS, P.E., B.S.C.E., M.S.C.E., *Assistant Professor of Theoretical and Applied Mechanics; Editor, Engineering Experiment Station* (1960), 1947.
BOHDAN PLASKACZ, M.A., PH.D., *Professor of Slavic Languages* (1963).
BERTA GERTRUD PLAUT, B.S., B.S.L.S., *Senior Catalogue Librarian, Library* (1963), 1953.
THEODORE JAMES PLETCHER, B.S.E., *Instructor in Industrial Engineering* (1963).
ROSCOE K. PLUMLEY,* B.S.AGR., *County Agent, Cooperative Extension Service* (1960).
MAX PLUTZKY, M.D., *Instructor in Psychiatry* (1962).
GEORGE GORDON POHLMAN, B.S., M.S., PH.D., *Professor and Chairman of Agronomy and Genetics; Agronomist, Agricultural Experiment Station* (1938), 1930.
STANLEY ANTHONY POLEWAY, D.D.S., *Professor and Chairman of Pedodontics* (1959).
MARION E. POOL, R.N., B.S., M.S., *Professor and Chairman of Public Health Nursing* (1963).
PETER POPOVICH, A.B., B.S., M.S., PH.D., *Associate Professor of Chemistry* (1960), 1946.
JOHN JOSEPH PORTER, B.S., *Assistant Manager, University Book Store* (1961), 1952.
JOHN WILLIAM PORTER, B.A., M.S., PH.D., *Assistant Professor of Aerospace Engineering* (1963).
DONALD CHARLES PORTNOY, B.S., M.A., *Assistant Professor of Music* (1962), 1959.
OLETA REED POST, B.S., M.A., *Instructor in Education; Teacher, University High School* (1953).
BARBARA JEAN POWELL,* A.B., *County Home Demonstration Agent, Cooperative Extension Service* (1957).
MAURICE GREEN POWELL, B.S., M.S., PH.D., *Assistant Professor of Chemistry, Parkersburg Branch* (1962).
ARLINE FRANCES PRENDERGAST, B.A., M.A., *Instructor in English* (1963).
BLANCHE ELIZABETH PRICE, A.B., M.A., *Assistant Professor of Home Economics* (retired); *Manager, University Cafeteria* (retired) (1959), 1945.
GARY LEE PRICE, B.S.F., *Instructor and Research Assistant in Forestry* (1963).
MARGARET ROGAN PRICE, R.N., *Head Nurse, Station 83, University Hospital* (1963), 1961.
PAUL HOLLAND PRICE, A.B., M.S., PH.D., *Director and State Geologist; Professor of Geology* (1960), 1930.
CLETIS PRIDE, B.S.J., *Acting Director, University News and Information Services* (1963), 1953. (Resigned November 15, 1963).
MAYNARD PRINCE PRIDE, A.B., M.D., *Clinical Assistant Professor of Surgery* (1960), 1949.
RICHARD LEE PRILLAMAN, CAPT., B.S., *Assistant Professor of Military Science* (1960). (Resigned August 22, 1963).
EMERY L. PRUNTY,* B.S.A.H., *County Agent, Cooperative Extension Service* (1962), 1959.
KAREN MAE PTAK, B.S., *Medical Dietitian, University Hospital* (1962).
BERTHA BROWNING, A.B., A.M., *Assistant Registrar* (retired) (1949), 1919.
JOHN PUSHKARSH, JR., A.B., A.M., *Instructor in Russian* (1955). (Resigned September 5, 1963).
EUGENE ANTHONY QUARRICK, A.B., M.A., PH.D., *Assistant Professor of Psychology* (1963).
HELEN P. QUARRICK,* B.S.H.E., M.S., *District Extension Home Demonstration Supervisor, Cooperative Extension Service* (1962), 1955.
BETTY JO QUEEN,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1959).
ELIZA JANE QUEEN, *Social Director, Terrace Residence Hall* (1960).

David Oliver Quinn,* A.B., M.S., *Extension Plant Pathologist and Entomologist, Cooperative Extension Service* (1956), 1953.
Jose M. Quintero, M.D., *Assistant Professor of Medicine; Chairman, Allergy Division* (1961).
Hadi Rahnamoon, M.D., *Resident in Obstetrics and Gynecology* (1962). (Resigned June 30, 1963).
Lewis Ira Railing, Geol.Engr., *Cost Research Engineer, School of Mines* (1962). (Resigned December 15, 1962).
Allen Huff Rakes, B.S., M.S., Ph.D., *Assistant Professor of Dairy Science; Assistant Dairy Scientist, Agricultural Experiment Station* (1960). (Resigned September 30, 1963).
Betty Jackson Ralston,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1963), 1958.
Betty Lou Ramsey, B.S.H.E., M.S., *Assistant Professor of Home Economics* (1963), 1956.
Evelyn Hill Randolph, B.S., M.S., *Cataloging Assistant* (part-time), *Medical Center Library* (1962), 1959.
Kenneth Vincent Randolph, B.S., D.D.S., *Dean, School of Dentistry; Professor of Operative Dentistry* (1958), 1957.
Richard Dale Randolph, B.A., *Assistant to the Director of Personnel* (1963), 1962.
Robert Edward Rankin, B.A., M.A., Ph.D., *Associate Professor of Psychology* (1961), 1954.
Elizabeth Frost Reed, A.M., *Assistant Professor Emeritus of English* (1953), 1919.
James Cornelius Reed, *Supervisor, Purchasing and Inventory, Comptroller's Office* (1953), 1946.
Mary C. Reed,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1959).
Perley Isaac Reed, Ph.B., A.B., A.M., Ph.D., *Director and Professor Emeritus of Journalism* (1958), 1920.
Ronald Michael Reed, B.A., M.A., *Instructor in Speech; Technical Director of University Theatre* (1961).
William Woodworth Reed, Jr., Maj., B.A., *Associate Professor of Military Science* (1959). (Resigned September 8, 1963).
Albert Moore Reese, A.B., Ph.D., *Professor Emeritus of Zoology* (1946), 1907.
Florence K. Reese, A.B., B.S.L.S., M.A., *Professor of Library Science* (1961), 1935.
Grady G. Reese, Capt., A.B., *Assistant Professor of Military Science; Supply Officer* (1962), 1961.
Robert Leslie Reid, B.S., B.Agr., Ph.D., *Assistant Professor of Animal Nutrition; Assistant Nutritionist, Agricultural Experiment Station* (1960), 1957.
Pauline Dawson Renforth, R.N., *Assistant Relief and Night Supervisor, University Hospital* (1960).
Eleanor J. Renton, A.B., *Staff Physical Therapist, University Hospital* (1963).
Harvey Nixon Rexroad, B.S.E.E., M.S., Ph.D., *Professor of Physics* (1962), 1947.
Margaret Floe Rexroad,* B.S.H.E., M.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1927).
Norman Leon Rexrode,* B.S., *County Agent, Cooperative Extension Service* (1957), 1955.
Randall William Reyer, A.B., M.A., Ph.D., *Associate Professor of Microanatomy and Organology* (1957).
Betty Lou Reynolds, B.S., *Instructor in Medical Technology* (1962). (Resigned December 1, 1962).
Edwin W. Reynolds, Col., B.S., *Professor of Military Science* (1962).
Michael Morgan Reynolds, A.B., M.S., M.A., *Assistant Director of Libraries* (1962), 1957.
Jackson C. Rhudy, B.S., M.S.W., *Assistant Professor of Social Work* (1962), 1959. (Deceased January 18, 1964).
Ferman Carl Rice,* *County Agent, Cooperative Extension Service* (1944).
George Wesley Rice, B.A., M.A., Ph.D., *Assistant Professor of Political Science* (1960).
Patricia Cook Rice, B.A., *Instructor* (part-time) *in Sociology* (1962).

Anthony Wayne Richards, B.S., *Research Assistant in Agricultural Biochemistry, Agricultural Experiment Station* (1962).
Jack E. Richardson, B.S.Pharm., *Staff Pharmacist, University Hospital* (1963).
Vivian Musgrave Richardson,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1956), 1934.
David William Richmond, B.S., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1963).
John Harrison Rietz, M.S., D.V.M., *Professor Emeritus of Animal Pathology* (1948), 1927.
Herbert L. Riggle,* B.S.Agr., *County Agent, Cooperative Extension Service* (1958), 1923.
Lorraine Beverly Riggleman, B.S., *Teacher,* (part-time), *University High School* (1962). (Resigned June 1, 1963).
R. Raymond Riordon, B.A., M.A., *Instructor in Physical Education; Swimming Coach* (1963).
Chesleigh R. Ripley,* B.S.Agr., *County Agent, Cooperative Extension Service* (1935).
Robert Allen Robards, B.S.B.A., *Assistant to the Director of Business Affairs; University Apartment Manager* (1960).
Carl Leo Roberts, *Equipment Custodian, Intercollegiate Athletics* (1947).
Elizabeth Ann Roberts,* B.S.H.E., M.S., *Extension Foods and Nutrition Specialist, Cooperative Extension Service* (1956), 1953.
Evan Owen Roberts, A.B., M.A., Ph.D., *Professor of Economics and Marketing* (1953), 1939.
Louise Boggess Roberts, B.S., M.A., *Instructor in Education* (retired); *Teacher* (retired), *University High School* (1960), 1928.
Jack Sutton Robertson, B.S., M.S., *Instructor in Chemistry* (1963), 1959.
Diana Amos Robinson, A.B., Ph.D., *Instructor* (part-time) *in Biochemistry* (1963), 1959.
J. Ben Robinson, D.D.S., D.Sc., *Dean Emeritus, School of Dentistry* (1958), 1953.
Robert Leo Robinson, A.B., M.A., Ph.D., *Assistant Professor of Pharmacology* (1961), 1959.
Ruth Eleanor Robinson, A.B., M.A., *Manager, University Book Store* (1944), 1939.
Satyabhlashi Parsram Rochlani, M.B., B.S., *Instructor in Pathology* (1962). (Resigned July 31, 1963).
Walter Harrison Rockenstein, A.B., S.T.B., S.T.M., *Instructor in Speech* (1956)
Fidel Rodriquez, B.S., M.D., *Resident in Surgery* (1963).
Earl G. Rogers, B.A., *Superintendent of Custodial Services, Physical Plant* (1960). (Resigned August 31, 1963).
Janet G. Rogers, B.A., M.S.S.W., *Senior Social Worker, Social Service Department, University Hospital* (1963).
Peter Cole Rogers,* B.S.Agr., M.S.Agr., *Assistant County Agent, Cooperative Extension Service* (1962).
Neal Wayne Rohr, B.S.Ch.E., *Instructor in Chemistry; Graduate Research Assistant in Chemical Engineering* (1963).
Kate Meredith Roller, A.B., M.A., *Instructor* (retired) *in Education; Teacher* (retired), *University High School* (1955), 1927.
Stanley Edward Romanoski, B.S., M.S., *Instructor in Physical Education; Head Coach, Cross-Country and Track* (1957).
Kurt Rosenbaum, B.A., Ph.D., *Assistant Professor of History* (1962).
Billy J. Ross, *Research Analyst, Bureau for Government Research* (1961). (Resigned May 31, 1963).
Harold Frederick Ross, B.S., M.S., *Assistant in Agronomy; State Extension Tobacco Specialist* (1960), 1956.
William Robert Ross, M.A., *Associate Professor of Political Science* (1963), 1939.
Philip Jean Rossana, B.S.E.E., *Instructor in Electrical Engineering* (1962). (Resigned May 31, 1963).
H. Allen Roush,* B.S., *Associate County Agent, Cooperative Extension Service* (1958).

Kathleen Guerrieri Rousseau, B.M., M.A., *Instructor in English* (1960).
Leonard I. Ruchelman, B.A., *Assistant Professor of Political Science* (1962).
Yaroslav Rudawsky, M.D., *Third Year Resident in Obstetrics and Gynecology* (1963).
Eugene E. Ruley, Geol., M.S., *Petroleum Research Engineer, Engineering Experiment Station* (1960).
Charles Michael Runner, *Stationary Engineer* (retired) *in Mechanical Engineering* (1950), 1919.
Everett Roy Russell, S/Sgt., *Instructor in Military Science* (1959). (Resigned September 6, 1963).
Byron Edward Ruth, B.S.C.E., M.S.C.E., *Instructor in Civil Engineering* (1961).
Richard Neil Ryan, B.S., M.A., *Instructor in Education; Teacher, University High School* (1959).
Aaron Sacks, A.B., M.S., *Lecturer* (part-time) *in Social Group Work* (1956).
Gordon T. Saddler, A.B., M.A., *Research Analyst, Bureau for Government Research* (1963), 1962.
Mabel Kersey Samuel, B.S., *Dietitian and Executive Housekeeper, Men's Residence Hall* (1946).
Rhoda K. Samuels, B.S., *Teacher, University High School* (1963).
Ernest James Sandy, B.S., *Assistant Professor of Mining Engineering* (1957), 1946.
Elaine Lynn Sapp, A.B., B.S., *Assistant Operating Room Supervisor, University Hospital* (1962), 1961.
Igor V. Sarkissian, B.S., M.S., Ph.D., *Associate Professor of Genetics; Associate Geneticist, Agricultural Experiment Station* (1962).
Viken Sassouni, Dent. Surg., M.Sc., D.Sc., D.D.S., *Professor and Chairman of Orthodontics* (1960).
Robert Earl Sausen, M.S.D., D.D.S., *Professor and Chairman of Operative Dentistry* (1958).
James Edward Saville,* B.S., M.S., *County Agent, Cooperative Extension Service* (1947), 1942.
LeRoy Hallowell Saxe, Jr., B.S., M.A., Ph.D., *Professor of Pharmacology and Pharmacy* (1962), 1955.
Greek Sayre, A.B., M.A., *Assistant Professor Emeritus of English* (1957), 1918.
George Etheridge Schafer, B.M., M.M., Ph.D., *Professor of Music; Chairman, Department of Graduate Studies* (1962), 1954.
James Hamilton Schaub, P.E., B.S.C.E., S.M.C.E., Ph.D., *Professor and Chairman of Civil Engineering* (1960).
Bernhard Scher, B.S., M.A., M.S.S.W., D.S.W., *Chairman and Professor of Social Work* (1961), 1960.
Jean Starr Scher, B.A., M.S., *Gifts and Exchange Assistant* (part-time), *Library* (1963), 1962.
John Gustav Scherlacher, B.S., M.Ed., *Professor and Chairman of Recreation; State Recreation Consultant* (1960), 1947.
James Lee Schmidt, A.B., M.S., Ph.D., *Instructor* (part-time) *in Pharmacology* (1962).
Joseph William Schmidt, Jr., B.S., M.S., *Instructor in Industrial Engineering* (1962).
Caroline W. Schnably,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1954), 1952.
Gerald L. Schneberger, A.B., M.S., *Research Assistant in Agricultural Biochemistry, Agricultural Experiment Station* (1962), 1961.
Victor Schneider, B.A., M.A., M.S.W., *Assistant Professor of Social Work* (1962).
Oscar Edmund Schubert, B.S.Agr., M.S., Ph.D., *Professor of Horticulture; Horticulturist, Agricultural Experiment Station* (1961), 1949.
Mary-Jane Schuster, A.B., *Counselor to Women Students* (1962).
Albert John Schwing, Jr., SFC, *Chief Clerk, Military Science* (1940).
Eion George Scott, B.Sc., Ph.D., *Professor and Chairman of Horticulture; Horticulturist, Agricultural Experiment Station* (1962).
Jane C. Scott, A.B., B.M., M.M., *Assistant Professor of Music Education* (1958).
Raymer Egbert Seaman, *Instructor Emeritus in Foundry Practice and Woodworking* (1945), 1912. (Deceased December 2, 1963).

JOHN EDWARD SEKNICKA, B.S.C.E., *Instructor* (part-time) *in Civil Engineering* (1961). (Resigned May 31, 1963).

ARTHUR W. SELDERS,* B.S., M.S., *State Extension Agricultural Engineering Specialist, Cooperative Extension Service* (1963).

LEON ZEE SELTZER, PH.C., B.S.E., *Professor and Chairman of Aerospace Engineering; Aerospace Engineer, Engineering Experiment Station* (1949). (Resigned August 31, 1963).

ALICE SEMON, B.S., M.A., *Instructor in Education; Teacher, University High School* (1962), 1939.

JOHN SEMON, A.B., M.S., *Associate Professor of Physical Education; Chairman of Physical Education for Men* (1955), 1943.

S. THOMAS SERPENTO, B.S., M.A., *Assistant Director of Personnel, Personnel Office* (1960).

RONALD G. SEVERS, A.B., B.S., M.D., *Resident in Surgery* (1961). (Resigned June 30, 1963).

GENE B. SEWELL, SFC., *Instructor in Military Science* (1963).

HARRY EDWARD SHAFER, JR., SC.B., M.S., *Research Geologist, Coal Research Bureau* (1962).

JAMES N. SHAFER, A.B., M.A., PH.D., *Associate Professor of Psychology* (1959), 1953.

RAYMOND EDWIN SHAFER, P.E., B.S.I.E., M.S.I.E., *Professor and Chairman of Industrial Engineering* (1957), 1949.

DALLAS BERT SHAFFER, B.A., M.A., *Acting Director, Parkersburg Branch; Instructor in History* (1963), 1962.

HUBERT ADAMS SHAFFER, B.S., M.D., *Consulting Radiologist, University Health Service; Clinical Associate Professor of Radiology and Anatomy* (1961), 1949.

KENNETH W. SHAFFER, B.A., M.A., *Adviser, Off-Campus Housing, Student Affairs* (1961).

WAYNE EUGENE SHAFFER, B.A., *Associate Professor of Military Science* (1962).

HAROLD JOSEPH SHAMBERGER, A.B., M.P.A., *Assistant to the President; Acting Director, University Relations* (1963), 1949.

STANLEY R. SHANE, B.A., M.D., *Research Associate in Medicine* (1962), 1961. (Resigned June 30, 1963).

ELEANOR JACKSON SHANKLIN,* B.A., B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1952).

JOHN C. SHARP, B.S., *Instructor* (part-time) *in Chemistry* (1963), 1962.

ANNE WAGONER SHARPE, B.S., M.T. (A.S.C.P.), *Chief Histotechnologist, Department of Pathology; Instructor in Medical Technology* (1963), 1957.

GEORGE SHARPE,* B.S.AGR., M.S., *State Extension Soil Conservation Specialist, Cooperative Extension Service* (1944), 1929.

CHARLES JACK SHEEHAN, B.S., M.A., *Veterans' Coordinator and Coordinator of Scholarships* (1957), 1955. (Resigned August 31, 1963).

ROSE MARIE SHEETS,* B.S.H.E., *County 4-H Agent-in-Training, Cooperative Extension Service* (1963).

STEPHANIE SHEHATOVICH, *Master Teacher in Piano, University Extension Division* (1960).

DAMON CHARLES SHELTON, B.S.A., M.S., PH.D., *Associate Professor of Biochemistry* (1960), 1953.

VERNON MORRIS SHEPPARD, JR., B.S., M.S., *Extension Economist, Department of Agricultural Economics* (1958). (On leave of absence September 1, 1962 to June 30, 1964).

DAVID CONNELL SHERREN, B.S.M.E., *Instructor in Mechanical Engineering* (1961).

CHARLES WILLIAM SHETLER, B.A., M.A., *Curator, West Virginia Collection, Library* (1950).

HARRIET MCCOWN SHETLER, A.B., *Executive Secretary, YWCA* (1962).

SOH CHAO SHIH, B.S., M.S., PH.D., *Research Associate in Agronomy and Genetics* (1961).

BEVERLY ANNETTE SHIPE,* B.S., *Home Demonstration Agent-in-Training, Cooperative Extension Service* (1963).

ANNIE HANDLEY SHOBE,* A.B., *County Home Demonstration Agent, Cooperative Extension Service* (1954), 1932.

John Edward Shockey, B.S., *Instructor in Physical Education; Freshman Football Coach* (1960), 1950.
Wilson Porter Shortridge, A.B., A.M., Ph.D., *Professor Emeritus of History* (1951), 1922.
Mary Ethel Shoup, R.N., B.S.N., M.S.N., *Instructor in Public Health Nursing* (1961).
Robert Wesley Shreeves, B.S., M.S., Ph.D., *Associate Professor of Theoretical and Applied Mechanics* (1961).
Howard Arnette Shriver,* B.S.Agr., *County Agent, Cooperative Extension Service* (1962), 1958.
Wihbi AbdulMunim Shu'ayb, M.D., *Second-Year Resident in Surgery* (1961).
James Robert Shumaker, B.S., M.S., *Instructor in Horticulture; Assistant in Horticulture, Agricultural Experiment Station* (1958). (Resigned September 24, 1962).
George Daniel Siehl,* B.S.Agr., *Area Extension Development Agent, Cooperative Extension Service* (1961), 1954.
Fred B. Silberstein, B.A., M.A., Ph.D., *Assistant Professor of Sociology* (1958), 1955.
Carroll Orr Simmons, *Assistant Housekeeper, University Hospital* (1961).
Charles Scott Simmons, *Conference Coordinator* (1962), 1947.
Robert Brent Simmons, B.S., *Instructor* (part-time) *in Chemistry* (1963).
Andrew L. Simon, Ph.D., *Lecturer in Chemical Engineering, Kanawha Valley Graduate Center* (1963).
Howard Perry Simons, P.E., B.A., M.Sc., Ph.D., *Professor and Chairman of Chemical Engineering; Chemical Engineer, Engineering Experiment Station* (1959), 1939.
Raymond A. Simpson, Jr., *Field Instructor, Fire Service Extension, School of Mines* (1962).
Armand Edwards Singer, A.B., A.M., Ph.D., *Professor of Romance Languages; Chairman, Integrated Studies and Humanities* (1963), 1940.
Leonard Marion Sizer, B.A., M.A., Ph.D., *Associate Professor of Rural Sociology; Associate Rural Sociologist, Agricultural Experiment Station* (1959), 1955.
Charles Preston Skaggs, B.S., C.P.A., M.S., *Lecturer in Accounting* (1954).
Elizabeth Summers Skaggs, R.N., B.S., *Assistant Director of Nursing Service, University Hospital* (1960).
John S. Skocik, Jr., B.S.Ed., M.S., *Instructor in Mathematics* (1962), 1960.
John Madison Slack, B.A., M.S., Ph.D., *Professor and Chairman of Microbiology* (1949), 1946.
Richard Henry Slavin, A.B., M.A., Ph.D., *Research Economist, Office of Research and Development* (1963).
Clark Kendall Sleeth, A.B., B.S., M.D., *Dean, School of Medicine; Professor of Medicine* (1961), 1935.
Robert Dean Slonneger, P.E., B.S.M.E., M.S.M.E., *Professor of Mechanical Engineering; Mechanical Engineer, Engineering Experiment Station* (1963), 1954.
Jacquelyn Hersh Slokin, B.A., *Research Analyst* (part-time), *Bureau for Government Research* (1963).
Sue Smallwood, B.S., *Assistant Administration Director, Dietetic Department, University Hospital* (1962), 1960.
Betty Neil Smith,* A.A., A.B., *County 4-H Agent, Cooperative Extension Service* (1961).
Boylston D. Smith, M.D., *Clinical Instructor* (part-time) *in Psychiatry* (1963).
Clement Art Smith, A.B., M.D., *Clinical Associate Professor of Radiology* (1962), 1960.
Fred Manning Smith, A.B., B.A., M.A., Ph.D., *Professor Emeritus of English* (1945), 1922.
Howard Carrollton Smith, B.S.A., *Superintendent, Poultry Science Farm* (1921).
Marion Judson Smith, P.E., B.S.E.E., M.S.E.E., *Professor of Electrical Engineering* (1956), 1954.
Nelson Stuart Smith, Jr., P.E., B.S.E.E., M.S.E.E., D.Sc., *Associate Professor of Electrical Engineering* (1963), 1956.
Paul Morrow Smith, B.S., *Superintendent of Dairy Processing; Instructor in Dairy Science* (1959).

ROBERT LEO SMITH, B.S., M.S., PH.D., *Assistant Professor of Wildlife Management; Assistant Forester, Agricultural Experiment Station* (1958).
SARA RECTOR SMITH, A.B., M.A., PH.D., *Associate Professor Emeritus of History* (1961), 1946.
SILAS PORTER SMITH,* B.S., *County Agent, Cooperative Extension Service* (1950), 1949.
VIRGINIA AUDREY SMITH, M.S.W., *Senior Social Worker, Social Service, University Hospital* (1962).
CHARLES R. SMOOT, B.S., PH.D., *Assistant Professor of Chemistry, Parkersburg Branch* (1961). (Resigned May 31, 1963).
DONALD LANE SNODGRASS, *Nuclear Engineering Technician in Chemical Engineering; Supervisor of Cobalt-60 Facility* (1960).
GLENN SNYDER, JR.,* B.S., *State Extension 4-H Programs Leader, Cooperative Extension Service* (1963), 1957.
ROBERT DOUGLAS SNYDER, B.S.M.E., M.S.M.E., *Instructor in Theoretical and Applied Mechanics* (1961).
JOSEPH ALVIN SOLOMON, B.S., M.S., PH.D., *Coal Research Engineer, School of Mines* (1962). (Resigned September 30, 1963).
BENJAMIN SONNENSCHEIN, MAJ., B.S., *Assistant Professor of Air Science* (1962).
JOSEPH EDWARD SPAFFORD, B.S.E.E., *Superintendent of Maintenance, Physical Plant* (1962).
ROBERT CLIFTON SPANGLER, A.B., M.A., PH.D., *Professor Emeritus of Botany* (1955), 1914.
MARCELLA JANNETTE SPARKS,* A.B., *County 4-H Agent, Cooperative Extension Service* (1962).
NORMAN KENNETH SPEICHER,* B.S.AGR., *County Agent, Cooperative Extension Service* (1943).
RAYMOND E. SPENCER,* B.S.AGR., *County Agent, Cooperative Extension Service* (1949), 1947.
WAYNE CAMPBELL SPIGGLE, A.B., M.D., *Resident in Medicine* (1962).
CLAUDE CARL SPIKER, A.B., M.A., PH.D., *Professor Emeritus of Romance Languages* (1954), 1913.
LYNN SPIKER,* B.S.AGR., *County Agent, Cooperative Extension Service* (1938).
ELIZABETH CARROLL SPINDLER, B.A., M.A., *Instructor in English* (1961), 1944.
JOSEPHINE BROWN SPINDLER, *Social Director, Women's Residence Halls* (1962), 1960.
EDWARD A. SPRAGUE, B.S., M.S., *Assistant Professor of Music, Extension Division* (1962).
ROBB SPAULDING SPRAY, PH.D., *Professor Emeritus of Bacteriology and Public Hygiene* (1946), 1921.
JOHN THOMAS SPRY, B.S., *Instructor* (part-time) *in Music* (1962).
WILLIAM SQUIRE, B.S., M.A., *Professor of Aerospace Engineering* (1961).
KEITH LOGAN STACKHOUSE, B.S., M.D., *Resident in Surgery* (1963).
RAYMOND DOUGLAS STALLARD, A.B., M.A., *Instructor in Speech; Director of Intercollegiate Forensics* (1961). (Resigned November 30, 1962).
ELIZABETH MATTINGLY STALNAKER, A.B., A.M., PH.D., *Professor Emeritus of Psychology* (1953), 1925.
FORREST WELLS STANDLEY, *Instructor* (part-time) *in Music* (1963).
EUGENE LEO STAPLES, B.S., M.H.A., *Director of University Hospital* (1960).
JOHN F. STASNY, A.B., M.A., *Instructor in English* (1955).
WILLIAM MOYER STAUFFER, B.S., M.D., *First Year Resident in Anesthesiology* (1962).
GENE ST. CLAIR, M/SGT., *Instructor in Military Science* (1963).
EDWARD M. STEELE, JR., A.B., M.A., PH.D., *Associate Professor of History* (1956).
PAULINE FAE STEELE, B.S., B.SC., M.A., *Assistant Professor and Director of Dental Hygiene* (1961).
WANDA RUTH STEMPLE,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1960).
ALLAN STEMPLER, A.B., *Research Technician in Neurosurgery* (1963).
FORREST WILBUR STEMPLE, A.B., M.SC., PH.D., *Professor Emeritus of Education* (1952), 1916.

Jacqueline Sue Stemple, B.S., *In-Service Education Supervisor, Nursing Service, University Hospital* (1960).
Ruth Stemple, B.S., M.S., *Head of Agriculture-Engineering Library* (1960), 1955.
Frank Herbert Stevens, B.S., D.D.S., *Instructor* (part-time) *in Endodontics* (1962).
Roy James Stevens, A.B., M.D., *Intern, University Hospital* (1963).
Mabel Margaret Stevenson, M.D., *Instructor in Clinical Pathology* (1963).
Guy Harry Stewart, B.S.J., M.A., Ph.D., *Associate Professor of Journalism* (1960), 1949.
Gwendolyn Jones Stewart, B.S., M.S.,*Research Assistant in Microbiology* (1960), 1953. (Resigned February 1, 1963).
Irvin Stewart, LL.B., B.A., M.A., Ph.D., LL.D., Litt.D., *Professor of Political Science* (1958), 1946.
Joseph K. Stewart, Ph.D., *Professor and Chairman of Mathematics; Assistant Dean, Graduate School* (1963), 1930.
Glenn Edward Steyers, B.S., M.S., *Associate Professor of Horticulture; Associate Horticulturist, Agricultural Experiment Station; University Landscape Architect* (1960).
George Allen Stickler,* B.S.Agr., *Area Extension Agent, Cooperative Extension Service* (1962), 1956.
John Clifford Stickney, B.S., M.S., Ph.D., *Professor of Physiology* (1957), 1940.
James D. Stiles,* B.S., *County Agent, Cooperative Extension Service* (1962), 1958.
Robert Stilwell, B.A., M.A., Ph.D., *Professor of German; Chairman of Foreign Languages; Director of NDEA Summer Language Institute* 1961- (1963), 1947.
Anthony H. Stocks, A.A., B.A., M.A., Ph.D., *Assistant Professor of Economics* (1961).
Stanley Harold Stolar, M.D.C.M., *Instructor in Anesthesiology* (1962). (Resigned May 10, 1963).
Lowry McElvaine Stoops, A.B., *Assistant Director of Athletics* (retired) (1962), 1926.
Benjamin Mortimer Stout, A.B., M.D., *Instructor in Medicine* (1963), 1957.
Woodbridge Stout,* B.S.Agr., M.S.Agr., *County Agent, Cooperative Extension Service* (1954), 1951.
John Milton Strait, M.E.E.E., M.E., *Associate Professor of Mechanical Engineering* (retired) (1961), 1955.
Perry Daniel Strausbaugh, Ph.D., *Professor Emeritus of Botany* (1948), 1923.
Robert Cowan Strong, Jr., B.S., M.S., B.Ed., *Instructor in Mathematics* (1957).
Maxine Ripley Strother,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1940).
Edward G. Stuart, B.S., M.A., Ph.D., M.D., *Associate Professor of Pathology; Assistant Dean, School of Medicine* (1960).
Katharine C. Stump,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1923).
Ronald L. Stump,* B.S.Agr., *State Extension Economic Development Program Leader, Cooperative Extension Service* (1962), 1948.
Mary Elizabeth Sullivan, *Staff Assistant, Registrar's Office* (1960), 1924.
Festus Paul Summers, A.B., A.M., Ph.D., D.Litt., *Professor of History* (1946), 1932.
Joan B. Summers, B.S., M.A., *Teacher* (part-time), *University High School* (1963).
Sheila P. Summers,* A.A., B.S.Ed., *County 4-H Agent, Cooperative Extension Service* (1961).
William Robert Summers, Jr., B.J., M.A., *Associate Professor of Journalism* (1960), 1952.
Ellen Louise Sumner, B.S.Ed., M.Ln., M.A., *Chief Reference Librarian* (1962).
Robert Earl Swartwout, B.S.E.E., M.S.E.E., Ph.D., *Professor of Electrical Engineering* (1963), 1962.
Donald Reed Swartz, A.B., M.D., *Intern, University Hospital* (1963).
Paul Edgar Swecker,* B.S.Agr., *County Agent, Cooperative Extension Service* (1963), 1956.
Robert Frederick Sweitzer, B.S.Agr., *Superintendent of Horticulture Farm* (1960).

GEARLEAN MARIE SWENTZEL, B.S., M.LITT., *Assistant Professor of Fundamentals of Nursing* (1963).

VERNON A. TACY,* B.S.AGR., *County Agent, Cooperative Extension Service* (1956), 1955.

JOSEPH PAUL TALERICO, A.B., M.A., *Instructor in Education; Teacher, University High School* (1950), 1948.

TERRY T. TALLMAN, A.B., M.D., *Intern, University Hospital* (1963).

THOMAS JOSEPH TARNAY, A.B., M.D., *Chief Resident in Surgery* (1963), 1960.

CARL B. TAYLOR, A.B., M.A., PH.D., *Assistant Professor of Family Life, Division of Home Economics* (1963), 1961.

FRANZ IRL TAYLOR,* B.S., *County Agent, Cooperative Extension Service* (1942), 1941.

HARLEY USTUS TAYLOR, JR., B.A., M.A., PH.D., *Assistant Professor of German* (1963), 1949.

JACK DEAN TAYLOR, B.S., M.A., *Instructor in Education* (1958), 1957. (Resigned September 1, 1963).

LELAND HART TAYLOR, B.S., M.S., SC.D., *Professor Emeritus of Zoology* (1963), 1922.

PAUL HAROLD TAYLOR, B.S., M.T.(A.S.C.P.), *Instructor in Medical Technology* (1963).

MARY CODDINGTON TEMPLETON, A.B., M.S., *Research Assistant in Agricultural Economics, Agricultural Experiment Station* (1955).

GLENDA PATRICIA TENNANT, *Supervisor of Auditing and Statistics, University Hospital* (1963), 1961.

JEAN MARIE TETER, B.S., *Administrative Medical Technologist, Clinical Laboratories, University Hospital* (1963), 1958.

W. DAVID TETER, B.S.M.E., *Instructor in Mechanical Engineering* (1961).

WILLARD DALE THACKER, B.S., *Chief Pharmacist, University Hospital* (1960).

LEWIS FRANKLIN THARP, *Chief Technician, Radiology Department, University Hospital* (1963).

RALPH HOUGH THEOPHILUS, P.E., B.S.E.E., LITT.M., M.ED., *Associate Professor of Electrical Engineering* (1956).

ALICIA J. THOMAS,* A.B., *County Home Demonstration Agent, Cooperative Extension Service* (1958).

ANNA MAE THOMAS, *Social Director, Governor Arthur I. Boreman Hall, North* (1962).

ARTHUR RAYMOND THOMAS, A.B., SC.M., PH.D., *Associate Professor of Psychology* (1962), 1956.

BARBARA S. THOMAS, B.S., M.A., *Instructor in Speech* (1961).

CHARLES DANSER THOMAS, A.B., M.S., PH.D., *Professor and Chairman of Physics* (1956), 1931.

KENNETH E. THOMAS, B.A., M.D., *Resident in Surgery* (1961).

ROBERT HAMILTON THOMAS, B.S.AGR., M.A., PH.D., *Associate Professor of Dairy Science; Associate Dairy Scientist, Agricultural Experiment Station* (1958).

C. TRUMAN THOMPSON, A.B., B.S., M.D., *Clinical Assistant Professor of Obstetrics* (1960).

JAMES HOWARD THOMPSON, A.B., M.A., PH.D., *Professor of Economics; Director, Bureau of Business Research* (1958), 1948.

PATRICK JOHN THOMPSON, *Business Office Manager, University Hospital* (1961).

GORDON RUDOLPH THORN, A.B., M.A., *Associate Director of Student Affairs; Head Resident, Men's Hall* (1962), 1957.

JUNE METZ THORN,* B.S., M.S., *State Extension 4-H and YMW Programs Leader* (retired), *Cooperative Extension Service* (1963), 1945. (Deceased February 25, 1964).

MARTHA TALMAN THORN, B.S., M.S., *Instructor in Physical Education* (1962), 1960.

MARY SUSANNE THRASHER, A.B., M.A., *Instructor in English* (1963).

LAWRENCE BLAIR THRUSH, A.B., M.D., *Clinical Instructor in Surgery* (1961).

HARRIETTE A. TIMBROOK,* A.A., B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1960).

George E. Toben, M.S., *Professor of Agricultural Economics in Farm Management; Agricultural Economist in Farm Management, Agricultural Experiment Station* (1960), 1946.

Robert John Tolbert, B.A., B.S., Ph.D., *Associate Professor of Biology* (1959). (Resigned July 19, 1963).

George Tolstoi, M.D., *Clinical Assistant Professor in Pathology* (1961).

Grover R. Tompkins, A.B., M.D., *Intern, University Hospital* (1963).

David E. Tork, B.S., *Assistant Director of Development* (1963).

Patrick Anthony Tork, A.B., M.S., *Assistant to the Dean and Professor of Physical Education* (1960), 1943.

Alice Tucker Torner,* A.B.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1944).

Celia Jeanette Tower, A.B., M.A., *Instructor in English* (1957).

Edwin C. Townsend, B.S., *Staff Assistant, Data Processing Center* (1960). (Resigned September 1, 1963).

Richard W. Townsley, Capt., B.S., *Assistant Professor of Military Science* (1961).

Martha Rector Traxler, *Chief Clerk* (retired), *College of Agriculture, Forestry, and Home Economics* (1962), 1927.

Charles Edward Triona, M/Sgt., *Instructor in Military Science* (1959). (Resigned June 6, 1963).

Carl Vinall Trosch, A.B., M.B.A., *Lecturer* (part-time) *in Commerce* (1963).

Robert Russell Trotter, B.A., B.S., M.D., *Associate Professor of Surgery; Chairman of Ophthalmology* (1963), 1961.

Rodney Philip True, A.B., Ph.D., *Professor of Plant Pathology; Plant Pathologist, Agricultural Experiment Station* (1955), 1949.

Earl Haven Tryon, B.S., M.S., Ph.D., *Professor of Silviculture; Silviculturist, Agricultural Experiment Station* (1952), 1945.

Charles Edward Tupes, B.S.I.E., *Analyst, Physical Plant* (1961).

Bradford Tye, B.S., M.S., *Instructor in Mathematics, University Extension Division* (1959). (Resigned September 9, 1963).

Budd Allen Udell, B.M., M.M.Ed., *Director of Marching Bands; Instructor in Music* (1963).

Benjamin Harrison Ulrich, Jr., P.E., B.S.A.E., M.S.A.E., *Acting Chairman of Aerospace Engineering; Associate Aerospace Engineer, Engineering Experiment Station* (1963), 1951.

Valentin Ulrich, A.B., Ph.D., *Associate Professor of Genetics; Associate Geneticist, Agricultural Experiment Station* (1962), 1957.

Arthur Ronald Urbanik, B.S., M.S., *Instructor* (part-time) *in Chemistry* (1963), 1961.

C. Gregory Van Camp, A.B., *Director, Department of Radio, Television, and Motion Pictures* (1963), 1960.

Thomas Ray Vance, B.S.M.E., *Instructor* (part-time) *in Theoretical and Applied Mechanics* (1963).

Otto Vernon Vande Linde, Jr., B.S., A.M., *Associate Professor of Farm Management and Conservation, Arapai Farm Institute, Soroti, Uganda, East Africa* (1963).

Elizabeth Ruth Vanderhorst, R.N., B.S.N., M.S., *Instructor in Psychiatric Nursing* (1962).

Willem Adolph van Eck, B.S., Trop.For., M.S., Ph.D., *Associate Professor of Agronomy; Associate Agronomist, Agricultural Experiment Station* (1963), 1957.

Audrey Howard VanLandingham, B.S., M.S., Ph.D., *Director of Agricultural Experiment Station; Associate Dean of College of Agriculture, Forestry and Home Economics* (1959), 1929.

Edward Jerald VanLiere, M.S., M.D., Ph.D., Litt.D., *Dean Emeritus of Medicine; Professor of Physiology; Research Professor of Obstetrics* (1961), 1921.

Paul Van Lith, M.D., *Clinical Assistant Professor of Medicine* (1961).

James M. Van Metre,* B.S., *County Agent, Cooperative Extension Service* (1958), 1954.

Victor V. VanVoorhis, R.T., *X-Ray Technician, Radiology* (1963).

Charles Edward Vanwinkle, B.S., D.D.S., *Instructor in Gross and Neurological Anatomy* (1963).

Betty Jane Veach, B.S.N.Ed., *Surgical Supervisor, Nursing Service Department, University Hospital* (1961).

Herbert Abraham Veach, T/Sgt., USAF, *Administrative Assistant, Air Science* (1961).

Collins Veatch, B.S., M.S., Ph.D., *Professor of Agronomy; Agronomist, Agricultural Experiment Station* (1959), 1945.

Charles Henry Vehse, Sc.B., M.S., Ph.D., *Professor of Mathematics* (1947), 1929.

William Everett Vehse, B.A., M.S., Ph.D., *Assistant Professor of Physics* (1961).

Marvin Lewis Vest, B.S., M.S., A.M., Ph.D., *Professor of Mathematics* (1955), 1931.

Victor S. Vierra, Capt., A.B., *Assistant Professor of Military Science* (1963).

Michael Anthony Viggiano, A.B., B.S., M.D., M.P.H., *Lecturer in Microbiology and Pharmacy* (1962), 1947.

Vern Hargrave Vincent, B.B.A., M.B.A., Ph.D., *Professor of Accounting* (1957).

Walter H. Voigt, B.S., M.A., *Instructor and Psychometrist in Psychology* (1962), 1961.

Robert Louis Vosburg, B.S., M.D., *Professor and Chairman of Psychiatry* (1963), 1961.

Mayme Elizabeth Waddell, B.S., M.A., *Director of Residence Halls* (retired) (1956), 1930.

J. Franklin Wade, Jr.,* B.S.Agr., *Area Extension Development Agent, Cooperative Extension Service* (1961), 1955.

Martin Russell Wade, Jr., B.S., *Assistant Professor of Air Science* (1963).

Rebecca Estra Wade, A.B., M.A., *Assistant Professor of Romance Languages* (1955), 1945.

Charles Richard Wagner, A.B.Arch., *University Architect, Physical Plant; Director of Physical Planning* (1962), 1961.

William V. Wagner, B.S., M.A., Ed.D., *Associate Professor of Education* (1963), 1959.

Jeanette Gail Walker, B.A., M.A., *Instructor in English* (1963).

Walter Hamilton Walker, A.B., B.S., M.A., Ph.D., *Director, Kanawha Valley Graduate Center of W.V.U.; Lecturer in Chemistry* (1960).

William Nelson Walker, Jr., A.B., B.S., M.D., *Clinical Instructor in Surgery* (1961).

Roy Emil Wall, *Associate Illustrator in Photography and Illustration in Medical Center* (1959).

Thomas Joseph Wall, B.S., M.Litt., *Director of Personnel, University Personnel Department* (1960). (Resigned January 31, 1964).

Emily G. Wallace, R.N., *General Duty Nurse, University Infirmary* (1959).

Charles Ernest Walls, *Laboratory Assistant and Mechanician in Chemical Engineering* (1947), 1938.

Richard Edison Walters, B.S.A.E., M.S.A.E., *Instructor in Aerospace Engineering* (1960), 1959.

James Henry Walthall, B.S., *Assistant Football Coach; Instructor in Physical Education* (1960).

Benjamin W. Wamsley,* B.S., M.S., *State Extension Animal Husbandry Specialist, Cooperative Extension Service* (1957), 1948.

Jane Hui Wang, M.D., *Resident in Medicine* (1962).

Herbert E. Warden, B.S., M.D., Ph.D., *Professor of Surgery* (1962), 1960.

Juanita Ruth Ware, R.N., *Night Assistant Nursing Supervisor, University Hospital* (1962), 1960.

Richard M. Ware, A.B., M.A., *Football End Coach; Instructor in Physical Education* (1962).

H. Lynn Warner, A.B., M.A., *Mechanician, Office of Business Relations and Records, College of Agriculture, Forestry and Home Economics* (1961).

Mary Melissa Washburn,* *Assistant to the Director, Cooperative Extension Service, West Virginia Center for Appalachian Studies and Development* (1962), 1934.

H. Waldo Wasson, B.S., M.A., Ph.D., *Professor of Speech* (1962).

James Allen Wasson, B.S., M.S., *Assistant Professor of Petroleum Engineering* (1960).

James Verne Watkins, B.S., *Assistant Director of Student Affairs* (1962), 1959.

Alvin L. Watne, B.S., M.D., M.S., *Associate Professor of Surgery* (1962).
Leighton Guilford Watson,* A.B., *Head, Communications and Visual Aids; State Extension Editor, Cooperative Extension Service* (1963), 1938.
Ray Howard Watson, B.A., M.S., *Assistant Football Coach; Instructor in Physical Education* (1960).
Daniel Thomas Watts, A.B., Ph.D., *Professor and Chairman of Pharmacology* (1953).
Royce Jackson Watts, B.S.B.A., M.S., *Assistant Professor of Statistics; Head, Office of Business Relations and Records, College of Agriculture, Forestry and Home Economics* (1961), 1955.
Charles Edward Weakley, Jr., A.B., M.A., *Associate Agricultural Biochemist Emeritus; Agricultural Experiment Station* (1955), 1907.
George William Weaver, P.E., B.S.M.E., M.S.M.E., *Assistant to the Dean, College of Engineering; Professor of Theoretical and Applied Mechanics* (1962), 1948.
Glover Aaron Webb, B.S.B.C., *Assistant Superintendent of Maintenance, Physical Plant* (1963).
Robert O. Weedfall, B.S., *Weather Bureau State Climatologist* (1963).
Samuel Josephus Weese, B.S., M.A., *Associate Professor of Dairy Science; Associate Dairy Scientist, Agricultural Experiment Station* (1951), 1945.
Ruth Weibel, B.S., M.S., *Instructor in Home Economics* (1962).
Betty Rae Weiford,* B.S., *County Home Demonstration Agent, Cooperative Extension Service* (1952).
James Alexander Welch, B.S.Agr., Ph.D., *Professor of Animal Science, Veterinary, Training Institute, Entebbe, Uganda, East Africa* (1963), 1952.
John Thomas Welch, A.B., D.D.S., *Associate Professor of Oral Surgery* (1959).
Lloyd Washington Welden, B.S., A.M., *Professor of Speech; Executive Secretary, West Virginia Interscholastic Forensic League; Director of Public Address* (1952), 1948.
Neil J. Weller, Ph.D., *Assistant Professor of Sociology* (1958).
Dana Wells, A.B., M.A., Ph.D., *Professor and Chairman of Geology* (1961), 1930.
Verna Lillian Wells, Ph.C., *Assistant to the Dean, College of Arts and Sciences* (1961), 1936.
William Arch Welton, A.B., M.D., *Assistant Professor and Chairman of Dermatology* (1962), 1961.
Chin-Yung Wen, B.S., M.S.Ch.E., Ph.D., *Associate Professor of Chemical Engineering* (1959), 1954.
Kyle Chester Westover, B.S., M.S., Ph.D., *Professor of Horticulture* (retired); *Horticulturist* (retired), *Agricultural Experiment Station* (1963), 1921.
Beatrice F. Whanger,* B.S.H.E., *County Home Demonstration Agent, Cooperative Extension Service* (1959), 1930.
Harry Grove Wheat, A.B., A.M., Ph.D., *Professor Emeritus of Education* (1956), 1935.
David Twining Whitcomb, B.S., M.D., *Instructor in Psychiatry* (1962). (Resigned July 15, 1963).
Ralph Milton White, A.B., LL.B., M.A., *Assistant Professor of Political Science* (1957), 1942.
Travis Edward White, B.S., M.D., *First-Year Resident in Internal Medicine* (1963).
Wesley Conway Whitmore, B.A., *Assistant Professor of Military Science* (1963).
Frederick Rendell Whittlesey, B.A., M.D., *Assistant Professor* (part-time) *of Medicine* (1940), 1930.
Edward W. Wickersham, B.S., M.S., Ph.D., *Assistant Professor of Biology* (1963).
Mary Kathryne Wiedebusch, B.S., *Instructor in Women's Physical Education* (1955).
Ella B. Wiese, *Executive Housekeeper, University Hospital* (1960).
Ira Barnes Wile, B.A., M.D., *Intern, University Hospital* (1963).
James Hugh Wiley, A.B., B.S., M.D., *Clinical Assistant Professor of Surgery* (1963), 1961.
Dale L. Wilhelm, B.S., M.S., Ph.D., *Associate Professor of Chemistry* (1959), 1954. (Resigned August 31, 1963).
Charles E. Williams,* B.A., *County 4-H Agent, Cooperative Extension Service* (1963).

JOHN RODNEY WILLIAMS, B.A., M.A., PH.D., *Professor and Chairman of Political Science* (1961), 1949.
KATHRYN MARIAN WILLIAMS, *Administrative Assistant, College of Engineering* (1962), 1934.
LAWRENCE WILLIAMS, A.B., B.S., M.D., *Resident in Surgery* (1961). (Resigned January 15, 1963).
LEAH ANN WILLIAMS, A.B., M.S., *Instructor in Biology* (1959).
T. WALLEY WILLIAMS, B.S., M.S., PH.D., *Professor and Chairman of Microanatomy and Organology* (1957), 1944.
DOUGLAS BLEECKER WILLIAMSON, B.A., M.A., ED.D., *Associate Professor of Physics* (1960), 1946.
KENNETH RAY WILLIAMSON, B.S., M.D., *Intern, University Hospital* (1963).
KENT LEE WILLIAMSON, *Technician in Pharmacy* (1961).
CLARENCE EDWARD WILLIS, A.B., *Instructor in Psychology* (1963), 1962.
HERBERT J. WILNER, B.A., M.H.L., D.H.L., *Instructor* (part-time) *in Hebrew* (1962).
AUBRY ANGELL WILSON,* B.S.AGR., *County 4-H Agent, Cooperative Extension Service* (1957).
CHARLES VINYARD WILSON, B.S.AGR., M.S., *Professor Emeritus of Animal Husbandry; Animal Husbandman Emeritus, Agricultural Experiment Station* (1952), 1919. (Deceased April 15, 1963).
CORA JEAN WILSON, B.S., *Medical Dietitian, University Hospital* (1962).
HAROLD ALBERT WILSON, B.S., M.S., PH.D., *Professor of Bacteriology; Bacteriologist, Agricultural Experiment Station* (1957), 1947.
JAMES EDWARD WILSON, JR., A.B., M.D., *Clinical Instructor in Surgery* (1961).
JOHN DENNIS HANDY WILSON, M.D., *Clinical Associate Professor of Radiology* (1962).
JOHN FREDERICK WILSON, A.B., D.D.S., *Instructor in Operative Dentistry* (1959), 1958.
MARGARET ANN WILSON, B.S., M.SC., PH.D., *Director, Dietetic Department, University Hospital* (1960).
QUINTUS CHARLES WILSON, B.S., M.A., PH.D., *Professor and Dean of Journalism* (1961).
ROBERT STRINGER WILSON, B.A., M.D., *Clinical Instructor in Surgery* (1961).
RODERICK WAYNE WILSON, A.B. M.S., *Instructor in Physics* (1960).
MAY LANDSTREET WILT, B.S., M.A., *Instructor in Education; Teacher, University High School* (1931), 1925.
AUDREY EDITH WINDEMUTH, B.S., M.N.A., *Director of Nursing Service, University Hospital; Associate Clinical Professor of Nursing* (1961), 1960.
ANTHONY WINSTON, B.S., M.S., PH.D., *Assistant Professor of Chemistry* (1959).
LOUISE FARRELL WINTERBOTTOM, *Law Librarian* (retired), *College of Law* (1959), 1924.
GEORGE H. WIRTZ, B.S., M..S, PH.D., *Assistant Professor of Biochemistry* (1963).
WOJCIK, ALBERT F., B.S., M.S., PH.D., *Associate Professor of Pharmacy Administration* (1963), 1945.
JOHN HERMAN WOLF, JR., A.B., M.D., *Resident in Pediatrics* (1963).
DAVID FRANCIS WOLFE, B.S., M.S., *Instructor* (part-time) *in Chemistry* (1963), 1960.
JOSEPH FRANCIS WOLFE, *Flight Instructor in Aerospace Engineering* (1958).
DARRELL ELROY WOOD, B.M., M.M., *Instructor in Education; Teacher, University High School* (1959).
JOHN KENNETH WOOD, B.M., M.M., *Associate Professor of Music* (1941), 1928.
FRANK ERNEST WOODSON, B.S., D.V.M., *Assistant Professor of Veterinary Science, Veterinary Training Institute, Entebbe, Uganda, East Africa* (1963).
YVONNE MILDRED WOOFTER, A.B., M.A., *Instructor in Education; Teacher, University High School* (1941), 1936.
DONALD THOMPSON WORRELL, P.E., B.S.E.E., M.S.E.E., *Professor of Theoretical and Applied Mechanics; Mechanical Engineer, Engineering Experiment Station* (1955), 1941.
FRED EARL WRIGHT, II, B.S., M.A., *Associate Professor of Finance* (1955), 1951.
JAMES WILLIAM WRIGHT, A.B., B.D., A.M., *Associate Professor of Sociology, University Extension Division* (1947).

Lawrence Alan Wright, B.A., M.D., *Intern, University Hospital* (1963).
Phillip Jay Wright, B.S., M.D., *Resident in Internal Medicine* (1962), 1961.
Pamela Nicholson Wrinch, A.B., M.A., Ph.D., *Visiting Assistant Professor of Political Science* (1962). (Resigned January 15, 1963).
Margaret Ann Yarbrough, R.N., *Nurse, University Health Service, Medical Center* (1961), 1953.
Joseph Neil Yeager,* B.S., *Area Extension Development Agent, Cooperative Extension Service* (1961), 1960.
Allen E. Yeakel, B.S., M.D., *Assistant Professor of Anesthesiology* (1961).
Elisabeth Steele Yearick, B.S., M.S., Ph.D., *Associate Professor of Nutrition; Associate Nutritionist, Agricultural Experiment Station* (1960).
Charles Peter Yost, B.S., M.S., Ph.D., *Professor of Physical Education; Chairman, Department of Safety Education* (1963), 1946.
Dorothy Delia Yost, A.B., B.S., R.N., *Teaching Assistant in Medical-Surgical Nursing* (1962).
David Alder Young, B.S., *Assistant Publicity Director, Intercollegiate Athletics* (1962).
Harold G. Young, B.S., M.D., *Clinical Associate Professor of Surgery* (1961).
James Robert Young, B.A., M.A., *Assistant Professor of Journalism* (1954).
John Stanley Zawacki, B.S., M.S., *Assistant Professor of Sociology* (1963), 1961.
Bernard Zimmermann, M.D., Ph.D., *Professor and Chairman of Surgery* (1960).
Jerome Harold Zwickel, B.S., M.A., *Instructor in English* (1963).

THE CLASSIFIED ENROLLMENT

A. The Summer Session, 1963

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Ec.	39	18	57	33	7	40	29	11	40	4	.....	4	105	36	141	15	1	16	120	37	157
Arts and Sciences	154	53	207	123	81	204	102	92	194	54	38	92	433	264	697	62	69	131	495	333	828
Commerce	80	.....	80	12	4	16	.....	.....	.....	.....	.....	.....	92	4	96	.....	.....	.....	92	4	96
Education	41	79	120	10	50	60	.....	.....	.....	.....	.....	.....	51	129	180	4	1	5	55	130	185
Engineering	71	.....	71	73	.....	73	57	1	58	16	.....	16	217	1	218	2	.....	2	219	1	220
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,286	618	1,904	238	174	412	1,524	792	2,316
Journalism	6	3	9	2	1	3	.....	.....	.....	.....	.....	.....	8	4	12	.....	.....	.....	8	4	12
Mines	6	.....	6	7	.....	7	.....	.....	.....	.....	.....	.....	13	.....	13	1	.....	1	14	.....	14
Music	18	7	25	9	9	18	3	4	7	1	1	2	31	21	52	.....	.....	.....	31	21	52
Nursing	.....	2	2	.....	5	5	.....	13	13	.....	6	6	.....	26	26	.....	8	8	.....	34	34
Physical and Health Education, Recreation and Safety	48	23	71	36	12	48	20	10	30	5	7	12	109	52	161	2	1	3	111	53	164
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Parkersburg Branch	1	1	2	1	.....	1	3	8	11	2	9	11	7	18	25	2	3	5	9	21	30
Total	464	186	650	306	169	475	214	139	353	82	61	143	2,352	1,173	3,525	326	257	583	2,678	1,430	4,108
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	.....	.....	.....	.....	1	1	.....	.....	.....	2	.....	2	2	1	3	.....	.....	.....	2	1	3
Law	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Medicine	1	10	11	.....	1	1	.....	.....	.....	.....	.....	.....	1	11	12	.....	.....	.....	1	11	12
Pharmacy	1	1	2	.....	.....	.....	3	.....	3	6	.....	6	10	1	11	.....	.....	.....	10	1	11
Total	2	11	13	.....	2	2	3	.....	3	8	.....	8	13	13	26	.....	.....	.....	13	13	26
GRAND TOTAL	466	197	663	306	171	477	217	139	356	90	61	151	2,365	1,186	3,551	326	257	583	2,691	1,443	4,134

B. The First Semester (September to January), 1963-64

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Ec.	133	48	181	92	40	132	136	47	183	100	46	146	461	181	642	27	.....	27	488	181	669
Arts and Sciences	257	134	391	398	190	588	553	379	932	606	430	1,036	1,814	1,133	2,947	32	58	90	1,846	1,191	3,037
Commerce	167	8	175	87	6	93	.....	.....	.....	.....	.....	.....	254	14	268	.....	.....	.....	254	14	268
Education	71	149	220	40	138	178	.....	.....	.....	.....	.....	.....	111	287	398	.....	.....	.....	111	287	398
Engineering	247	1	248	260	.....	260	324	1	325	264	2	266	1,095	4	1,099	3	.....	3	1,098	4	1,102
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	949	294	1,243	103	72	175	1,052	366	1,418
Journalism	18	10	28	17	10	27	.....	.....	.....	.....	.....	.....	35	20	55	.....	.....	.....	35	20	55
Mines	17	.....	17	14	.....	14	13	.....	13	7	.....	7	51	.....	51	3	.....	3	54	.....	54
Music	23	19	42	17	17	34	15	20	35	22	20	42	77	76	153	1	.....	1	78	76	154
Nursing	.....	22	22	.....	34	34	.....	49	49	.....	55	55	.....	160	160	.....	27	27	.....	187	187
Physical and Health Education, Recreation and Safety	77	28	105	99	38	137	83	39	122	61	39	100	320	144	464	1	.....	1	321	144	465
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	78	4	82	3	.....	3	81	4	85
Parkersburg Branch	1	1	2	2	2	4	20	10	30	69	30	99	92	43	135	10	11	21	102	54	156
TOTAL	1,011	420	1,431	1,026	475	1,501	1,144	545	1,689	1,129	622	1,751	5,337	2,360	7,697	183	168	351	5,520	2,528	8,048
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	15	.....	15	32	3	35	29	8	37	51	18	69	127	29	156	.....	.....	.....	127	29	156
Law	.....	.....	.....	45	1	46	55	2	57	84	4	88	184	7	191	.....	.....	.....	184	7	191
Medicine	39	11	50	52	27	79	55	4	59	49	11	60	195	53	248	.....	.....	.....	195	53	248
Pharmacy	4	.....	4	.....	.....	.....	24	5	29	22	6	28	50	11	61	.....	.....	.....	50	11	61
TOTAL	58	11	69	129	31	160	163	19	182	206	39	245	556	100	656	.....	.....	.....	556	100	656
GRAND TOTAL	1,069	431	1,500	1,155	506	1,661	1,307	564	1,871	1,335	661	1,996	5,893	2,460	8,353	183	168	351	6,076	2,628	8,704

C. The Second Semester (February to June), 1963-64

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Ec	110	45	155	106	44	150	110	47	157	97	46	143	423	182	605	29	1	30	452	183	635
Arts and Sciences	226	137	363	386	162	548	476	346	822	556	403	959	1,644	1,048	2,692	39	55	94	1,683	1,103	2,786
Commerce	148	8	156	106	6	112	.....	.....	.....	.....	.....	.....	254	14	268	.....	.....	.....	254	14	268
Education	64	131	195	52	145	197	.....	.....	.....	.....	.....	.....	116	276	392	.....	2	2	116	278	394
Engineering	228	1	229	243	.....	243	274	1	275	244	1	245	989	3	992	2	.....	2	991	3	994
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	982	278	1,260	74	54	128	1,056	332	1,388
Journalism	18	13	31	19	8	27	.....	.....	.....	.....	.....	.....	37	21	58	.....	.....	.....	37	21	58
Mines	13	.....	13	10	.....	10	12	.....	12	7	.....	7	42	.....	42	4	.....	4	46	.....	46
Music	21	18	39	16	18	34	15	19	34	21	17	38	73	72	145	1	1	2	74	73	147
Nursing	.....	23	23	.....	29	29	.....	45	45	.....	54	54	.....	151	151	.....	23	23	.....	174	174
Physical and Health Education, Recreation and Safety	74	26	100	103	39	142	87	35	122	72	41	113	336	141	477	1	1	2	337	142	479
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	74	1	75	.....	.....	.....	74	1	75
Parkersburg Branch	4	3	7	1	.....	1	17	11	28	49	23	72	71	37	108	5	11	16	76	48	124
TOTAL	906	405	1,311	1,042	451	1,493	991	504	1,495	1,046	585	1,631	5,041	2,224	7,265	155	148	303	5,196	2,372	7,568
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	16	.....	16	32	2	34	29	9	38	51	16	67	128	27	155	.....	.....	.....	128	27	155
Law	.....	.....	.....	42	1	43	53	2	55	76	3	79	171	6	177	.....	.....	.....	171	6	177
Medicine	39	11	50	51	26	77	56	4	60	50	11	61	196	52	248	.....	.....	.....	196	52	248
Pharmacy	4	.....	4	.....	.....	.....	24	5	29	21	6	27	49	11	60	.....	.....	.....	49	11	60
TOTAL	59	11	70	125	29	154	162	20	182	198	36	234	544	96	640	.....	.....	.....	544	96	640
GRAND TOTAL	965	416	1,381	1,167	480	1,647	1,153	524	1,677	1,244	621	1,865	5,585	2,320	7,905	155	148	303	5,740	2,468	8,208

D. The Academic Year (September to June), 1963-64

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Ec	136	50	186	110	46	156	136	55	191	108	50	158	490	201	691	29	1	30	519	202	721
Arts and Sciences	261	147	408	410	173	583	565	381	946	630	440	1,070	1,866	1,141	3,007	55	92	147	1,921	1,233	3,154
Commerce	182	9	191	112	7	119	.....	.....	.....	.....	.....	.....	294	16	310	.....	.....	.....	294	16	310
Education	74	160	234	53	151	204	.....	.....	.....	.....	.....	.....	127	311	438	.....	2	2	127	313	440
Engineering	253	1	254	261	.....	261	301	1	302	265	1	266	1,080	3	1,083	3	.....	3	1,083	3	1,086
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,194	358	1,552	114	88	202	1,308	446	1,754
Journalism	19	14	33	21	8	29	.....	.....	.....	.....	.....	.....	40	22	62	.....	.....	.....	40	22	62
Mines	17	.....	17	12	.....	12	15	.....	15	8	.....	8	52	.....	52	4	.....	4	56	.....	56
Music	22	19	41	17	18	35	15	19	34	23	18	41	77	74	151	1	1	2	78	75	153
Nursing	.....	23	23	.....	31	31	.....	48	48	.....	55	55	.....	157	157	.....	30	30	.....	187	187
Physical and Health Education, Recreation and Safety	81	28	109	109	39	148	99	38	137	82	44	126	371	149	520	1	1	2	372	150	522
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	104	4	108	1	.....	1	105	4	109
Parkersburg Branch	4	3	7	1	1	2	21	12	33	78	29	107	104	45	149	13	20	33	117	65	182
TOTAL	1,049	454	1,503	1,106	474	1,580	1,152	554	1,706	1,194	637	1,831	5,799	2,481	8,280	221	235	456	6,020	2,716	8,736
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	16	.....	16	32	2	34	29	9	38	52	18	70	129	29	158	.....	.....	.....	129	29	158
Law	.....	.....	.....	44	1	45	56	2	58	86	3	89	186	6	192	.....	.....	.....	186	6	192
Medicine	40	11	51	51	26	77	55	4	59	50	11	61	196	52	248	.....	.....	.....	196	52	248
Pharmacy	4	.....	4	.....	.....	.....	24	5	29	22	6	28	50	11	61	.....	.....	.....	50	11	61
TOTAL	60	11	71	127	29	156	164	20	184	210	38	248	561	98	659	.....	.....	.....	561	98	659
GRAND TOTAL	1,109	465	1,574	1,233	503	1,736	1,316	574	1,890	1,404	675	2,079	6,360	2,579	8,939	221	235	456	6,581	2,814	9,395

E. The Summary for 1963-64

Colleges and Schools	Senior			Junior			Sophomore			Freshman			Total			Special			Grand Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agr., For., & Home Ec	140	57	197	111	46	157	136	56	192	108	50	158	495	209	704	29	2	31	524	211	735
Arts and Sciences	287	165	452	419	187	606	573	389	962	642	448	1,090	1,921	1,189	3,110	101	149	250	2,022	1,338	3,360
Commerce	204	9	213	112	7	119	.....	.....	.....	.....	.....	.....	316	16	332	.....	.....	.....	316	16	332
Education	90	184	274	54	162	216	.....	.....	.....	.....	.....	.....	144	346	490	1	3	4	145	349	494
Engineering	266	1	267	262	.....	262	307	1	308	269	1	270	1,104	3	1,107	5	.....	5	1,109	3	1,112
Graduate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,020	840	2,860	309	249	558	2,329	1,089	3,418
Journalism	19	14	33	21	8	29	.....	.....	.....	.....	.....	.....	40	22	62	.....	.....	.....	40	22	62
Mines	18	.....	18	12	.....	12	15	.....	15	8	.....	8	53	.....	53	4	.....	4	57	.....	57
Music	23	20	43	17	18	35	15	20	35	24	18	42	79	76	155	1	1	2	80	77	157
Nursing	.....	23	23	.....	31	31	.....	48	48	.....	55	55	.....	157	157	.....	31	31	.....	188	188
Physical and Health Education, Recreation and Safety	98	33	131	109	40	149	101	38	139	84	45	129	392	156	548	3	2	5	395	158	553
Kanawha Valley Center	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	104	4	108	1	.....	1	105	4	109
Parkersburg Branch	4	4	8	1	1	2	22	17	39	78	33	111	105	55	160	15	20	35	120	75	195
Total	1,149	510	1,659	1,118	500	1,618	1,169	569	1,738	1,213	650	1,863	6,773	3,073	9,846	469	457	926	7,242	3,530	10,772
	4th Year			3rd Year			2nd Year			1st Year			Total			Special			Grand Total		
Dentistry	16	.....	16	32	2	34	29	9	38	52	18	70	129	29	158	.....	.....	.....	129	29	158
Law	.....	.....	.....	44	1	45	56	2	58	86	3	89	186	6	192	.....	.....	.....	186	6	192
Medicine	40	11	51	51	26	77	55	4	59	50	11	61	196	52	248	.....	.....	.....	196	52	248
Pharmacy	4	.....	4	.....	.....	.....	24	5	29	22	6	28	50	11	61	.....	.....	.....	50	11	61
TOTAL	60	11	71	127	29	156	164	20	184	210	38	248	561	98	659	.....	.....	.....	561	98	659
GRAND TOTAL	1,209	521	1,730	1,245	529	1,774	1,333	589	1,922	1,423	688	2,111	7,334	3,171	10,505	.....	.....	.....	7,803	3,628	11,431

	Men	Women	Total
UNIVERSITY EXTENSION OF COLLEGIATE GRADE:			
University Extension of Collegiate Grade (not counted elsewhere)	549	582	*1,131
University Resident Enrollment	7,803	3,628	11,431
Total University Enrollment of Collegiate Grade	8,352	4,210	12,562
*This number represents those persons enrolled only in extension courses of collegiate grade.			
CONFERENCES:			
Administration Leadership Seminar			12
Agricultural Sciences Course of Study Workshop			18
American Society of Agronomy Conference			150
Conservation Education Workshop			45
Economic Education Workshop			39
Elementary Music Education Workshop			3
Food and People Workshop			15
Hospital Workers Workshop			23
Industrial Engineering Conference			165
Labor Management Conference			80
Life Science Institute			20
Living Resources Forum			270
School of Banking			135
Special Problems in Elementary Mathematics			30
Special Problems in Reading Workshop			11
Tax Institute			150
Visiting Homemakers Program			45
West Virginia Christmas Tree Growers Association			55
West Virginia Fine Arts Institute			89
West Virginia High School Journalism Conference			140
West Virginia High School Journalism Teachers & Publications Advisers Workshop			31
West Virginia High School Yearbook Seminar			125
Total			1,651
EXTENSION: (Non-Collegiate Grade)			
Coal Preparation			7
Total			7
SHORT COURSES AT MORGANTOWN:			
Appalachian Gas Measurement Short Course			702
Appalachian Underground Corrosion Short Course			625
Applied Basic Fire Safety Short Course			28
Fall Management of Alfalfa Short Course			40
Fire Prevention Short Course			47
Industrial Fire Safety Short Course			25
Pest Control Operators Short Course			132
West Virginia State Fire School			80
Winter Feeding and Management of Beef Cattle Short Course			45
Total			1,724
GRAND TOTAL			15,944

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1964

May 30, Saturday	Alumni Day
May 31, Sunday	Baccalaureate Exercises
June 1, Monday	Commencement
June 15, Monday	Registration for Summer Session
June 16, Tuesday	First Classes, Summer Session
July 15, Wednesday	English Proficiency Examination
August 22, Saturday	Close of Summer Session
September 10, Thursday, to September 13, Sunday	Freshman Week Program
September 10 and 11, Thursday and Friday	General Registration, First Semester
September 12, Saturday	Freshman Registration
September 14, Monday	First Classes, First Semester
October 8, Thursday	English Proficiency Examination
October 13, Tuesday	Meeting of University Senate
November 2, Monday	Mid-semester Reports Due
November 25, Wednesday, to November 29, Sunday, incl.	Thanksgiving Recess
December 19, Saturday noon, to January 3, Sunday, incl.	Christmas Recess

1965

January 16, Saturday	Last Classes, First Semester
January 18, Monday to January 23, Sat.	Final Examinations for First Semester
January 29 and 30, Friday and Saturday	General Registration for Second Semester
February 1, Monday	First Classes, Second Semester
February 7, Sunday	West Virginia University Day
February 9, Tuesday	Meeting of University Senate
February 18, Thursday	English Proficiency Examination
March 29, Monday	Mid-semester Reports Due
April 16, Friday, to April 19, Monday, incl.	Easter Recess
May 11, Tuesday	Meeting of University Senate
May 18, Tuesday	Last Classes, Second Semester
May 20, Thursday, to May 26, Wednesday	Final Examinations, Second Semester
May 26, Wednesday	Grade Reports for Graduating Seniors and Graduate Students due in Deans' Offices
May 27, Thursday	Deans' Reports of Graduates due in Registrar's Office
May 29, Saturday	Alumni Day
May 30, Sunday	Baccalaureate Exercises
May 31, Monday	Commencement